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ABSTRACT

This vocational agriculture curriculum on grain marketing contains three parts: teacher guide, student manual, and student workbook. All three are coordinated and cross-referenced. The course is designed to give students of grain marketing a thorough background in the subject and provide practical help in developing grain marketing strategies for their own corn, soybean, and wheat crops. The teacher guide is designed to assist the teacher in guiding students in use of the manual. It also repeats questions from the workbook, provides the appropriate reference for each (with page numbers) in the student manual, and usually suggests an answer. Transparency masters are included at the end of each chapter and recommended when appropriate to support the study. Solutions to workbook problems are presented. The student manual contains five chapters: fundamentals of grain marketing; grain delivery, grading, and storage; kinds of grain markets; marketing alternatives; and developing a grain production and marketing plan. A glossary and 28 references are appended. The workbook poses questions designed to guide students through their study of grain marketing and provides space for answering the questions as well as completing exercises. It presents numerous problems that illustrate grain marketing points. (YLB)

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MARKETING FARM GRAIN CROPS

TEACHER GUIDE

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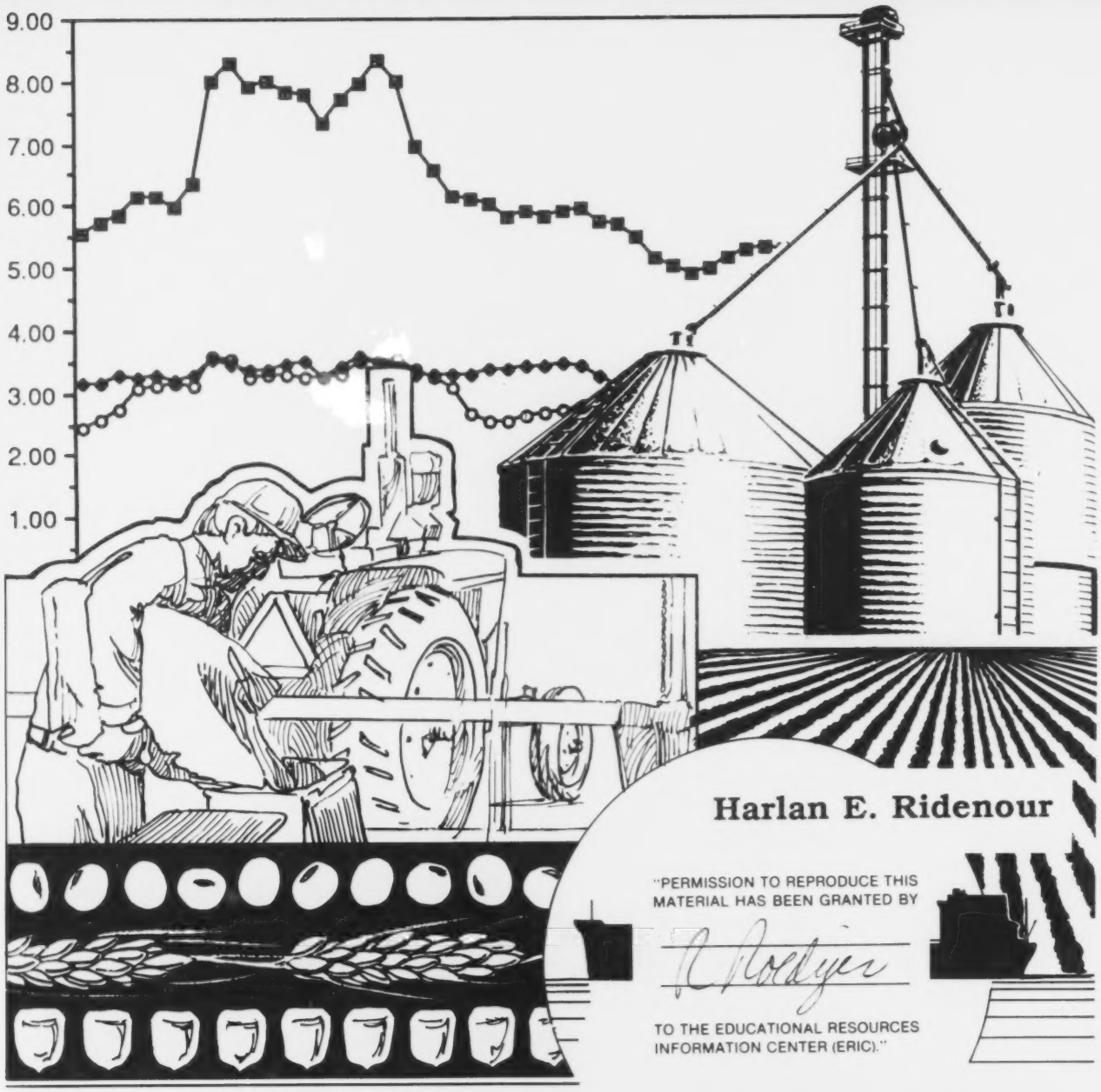

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MARKETING FARM GRAIN CROPS

Teacher Guide

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Preface

Marketing Farm Grain Crops consists of three publications: a *Student Manual*, a *Teacher Guide*, and a *Student Workbook*, all three coordinated and cross-referenced. This manual, *Marketing Farm Grain Crops - Teacher Guide*, is designed to assist you as the teacher of grain marketing in guiding your students in the use of the *Student Manual*. This guide, however, is not designed as a lesson plan for you and does not lend itself to such use.

The *Student Workbook* poses questions that are designed to guide students through their study of grain marketing. This *Teacher Guide* then repeats these questions, provides the appropriate reference for each (with page numbers) in the *Student Manual*, and usually suggests an answer. Also, visuals (transparency masters), from which transparencies can be made, are included ***at the end of each chapter*** and recommended when appropriate to support the study.

Numerous problems that illustrate grain marketing points are presented in the *Student Workbook*. The solutions to these problems are presented in this *Teacher Guide*. You may also want to provide your students with additional problems based upon current local conditions.

The final assignment in the *Student Workbook* is preparation of a grain marketing plan using home farm and local grain marketing situations. If students have difficulty dealing with specific parts of the plan, refer them to the appropriate pages of the *Student Manual* for assistance.

The recommended approach to each problem or question posed to the students is to first identify it appropriately and clearly with the class. Following this can be supervised study in the *Student Manual* and the use of appropriate visuals. After you have led in a class discussion, have the students answer the questions or work the problems and exercises in the *Student Workbook*.

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CHAPTER 1

FUNDAMENTALS OF GRAIN MARKETING

Introduction

Many farmers and vocational agricultural students are interested in expanding their operations to secure greater profits. It is likely that the greatest benefit can be secured by improving their marketing procedures first, then expanding production as marketing skills are developed. Today the farmer who is doing the best job of marketing his/her product has a definite edge on the competition.

As recently as the 1960s, grain prices seldom varied more than 20¢ to 30¢ throughout the year from the highs to the lows of the commodity. Today grain bids can vary that much in one day, and when national and international conditions dictate, many local elevators will take an additional 40¢ to 50¢ protection against uncertain markets. Because of the fluctuations of the market and ever-increasing production costs, farmers today need to develop sound marketing plans that will produce optimum returns for their investment.

Farmers today need to know their costs of production, determine a reasonable margin of profit, and set some target prices to shoot for as they determine their marketing strategy. They must know the various alternatives available to them to help attain their target prices.

It has been said that farmers spend 95% of their time in the production of the product and 5% in the marketing of the commodity. Production is certainly important, but profit and loss is usually determined in the marketing.

Approximately 75% of grain marketed is sold in the low one-third of the value range in any given marketing year. This needs to be reversed!

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1. Marketing Functions

REFERENCE: *Marketing Farm Grain Crops Student Manual*, pages 3-11, Marketing Functions.

The timing of marketing grain and the methods of marketing grain that are to be used are some of the most important decisions a farmer has to make. The right decision in marketing may well make a farmer a great deal more money in grain farming than all the important decisions on seed selection, tillage practices, fertilizers, herbicides and harvest practices.

One method that can be used to introduce students to the subject of marketing grain is to set up a practical student interest illustration of some of the functions of marketing. These functions, activities which go on from the time of sale of the raw product until it finally reaches the consumer, often seem abstract and remote to the student. The following technique may help students develop an answer to the question, "What are the marketing functions that are related to the marketing of grain?"

Show samples of raw grain and finished consumer products to the students.

Examples:

1. A handful of wheat, a sample of wheat bran, and a loaf of bread.
2. A handful of corn, a sample of corn middlings, and a box of corn flakes.
3. A handful of soybeans, a sample of soybean oil meal, and a bottle of soybean cooking oil.
4. Any other products made from grain which would be appealing to students.

In addition, a visual may be used.

Visual 1-1 What Happens to Your Grain from the Time It Leaves Your Combine until Purchased by a Consumer?

1a. Question: What are the functions of marketing?
(See *MFGC Student Workbook*, page 1, #1a.)

Ask students questions that will lead to development of the list of marketing functions.

Example questions:

1. How appealing is this handful of corn to the consumer in its present form? Would you be willing to pay for it *as is* for human food?

2. Is this corn any more desirable when made into corn flakes? Is it worth more money?

3. When corn products are made desirable for human consumption, what effect is there on demand for corn? What effect does increased demand have on the price received for corn?

4. What goes on behind the scenes to get corn from the raw product to corn flakes?

Possible answers that will develop with prompting by more questions and comments.

The functions of marketing are:

1. Selling and buying
   (Many people buy and sell to get to a finished product.)

2. Transportation
   (Consumers are often far removed from where grain is produced.)

3. Processing
   (Taste, texture, and form affect appeal.)

4. Packaging
   (Emphasis is on packaging in handy amounts for consumer use as well as on visual appeal.)

5. Storing
   (At certain stages grain must be held until a buyer is on hand for the next stage.)

6. Grading and standardizing
   (Buyers all along the way need to know what they can count on.)

7. Financing
   (Financing provides capital for ownership of the grain.)

8. Risk bearing
   (There is risk of decline in price or loss of grain due to accident.)

9. Market information
   (Private and public agencies supply market news.)

10. (Others)

Show ***Visual 1-2*** Marketing Functions, for review.

2. Marketing Routes for Grain

REFERENCE: *MFGC Student Manual*, pages 12-14, Marketing Routes for Grain.

After your grain leaves your farm, it must pass through many hands while the different marketing functions are being performed. You may sell your grain directly from your combine or store it on your farm or in commercial storage for later sale.

2a. Question: What are the different market outlets available to farmers and the marketing functions performed by each? Give examples of each in your area.
(See *MFGC Student Workbook*, page 1, #2a.)

Draw as much of this information as possible from your students.

Possible answers:

The following are market outlets:

(1) Livestock feeders. You may feed some of your own grain or sell it to neighboring livestock feeders.

(2) Country elevators serve as local collection points for grain, and buy most of their grain from local farmers. The grain is graded, purchased, financed, stored and then shipped on to the next point.

(3) Subterminal elevators serve as intermediate collection points for grain. They buy grain from farmers and other elevators. They perform the same marketing functions as the local elevators. Usually, they are larger in size.

(4) Terminal elevators serve as grain collection points in the major grain marketing areas of the country, such as Chicago. They buy their grain from other elevators and farmers. Much of their grain is moved on to grain processors or export terminals. They also grade, purchase, finance, store and then ship the grain to the next point.

(5) Processors buy their grain from other elevators and farmers. In addition to the other marketing functions, they convert the raw grain into human food, animal feed and industrial products that can be used by the consumer.

(6) Export terminals buy their grain from other elevators and farmers. They are usually located on the Great Lakes, rivers or the ocean so that their grain can be moved overseas.

(7) The USDA Commodity Credit Corporation (CCC) may lend money to farmers on their grain before it is sold. The CCC does not have storage facilities of its own; it stores grain either on the farm or in commercial storage. Depending upon the price of grain, the farmer may pay off the loan or default and let CCC take possession of the grain.

The grain follows different routes, depending upon where it is marketed. The route followed by the grain is referred to as a *grain marketing channel*. The list of market outlets for grain and the possible channels it may follow can be reviewed in:

Visual 1-3 Marketing Channels

The grain must be transported from the farm to the collection point to which the farmer chooses to sell his/her grain. The grain is then moved from one collection point to the next as it passes through the marketing channel.

2b. Question: What are the common carriers used in transporting grain?
(See *MFGC Student Workbook*, page 2, #2b.)

If some of the forms of transportation are not familiar to the students, you may need to ask leading questions.

Answer:
1. Farm truck or hopper wagon
2. Large grain trucks owned by elevators
3. Railroad hopper cars (unit trains may be used by terminal elevators)
4. River barges
5. Ocean-going grain ships

See ***Visual 1-4*** Methods of Transporting Grain.

3. Definition of Marketing

REFERENCE: *MFGC Student Manual*, page 1, Definition of Marketing.

3a. Question: After considering the functions of marketing, the marketing channels, and methods of transporting grain, how would you define a market?
(See *Student Workbook*, page 2, #2b.)

Let the students come up with their own definitions which may be placed on the chalkboard. You may need to ask leading questions to help them in putting together a definition of marketing.

The *answer* should include the following items:
* place
* establishing price (using market information)
* transfer of the commodity

A *possible answer* is:

A market is a place suitable for a buyer and a seller to come together for the purpose of trading a product. If a price is agreed upon, the product changes hands. To establish a fair price, both seller and buyer must be familiar

with the supply and demand of the product and how it is selling in other markets.

3b. Question: What grain markets are you familiar with? Describe them.
(See *MFGC Student Workbook*, page 2, #3b.)

The *answers* will depend upon the students' past experiences. Answers may vary from describing the sale of grain to a neighboring livestock feeder, to transporting the grain to one of the collection points mentioned in the section, Marketing Routes for Grain.

Ask the students to describe grain marketing places they are familiar with and what they see taking place as their grain changes hands. This would include such acts as weighing, sampling, unloading and moving the grain into storage.

Tracing the ***flow of grain*** through marketing channels should provide students with a better understanding of the total marketing process. Examples are given in the *Student Manual* and the visual.

REFERENCE: *MFGC Student Manual*, pages 13-14, Tracing the Flow of Grain through Marketing Channels - Examples.

Visual 1-5 Movement of Grain from Producer to Consumer

3c. Question: What marketing channels does your corn, wheat, or soybean crop pass through as it moves from your farm to the consumer?
(See *MFGC Student Workbook*, page 3, #3c.)

To answer this question, students may need to seek the assistance of people in the grain marketing trade, like the local elevator grain buyer.

The role of marketing is getting the product to the consumer in the form and at the place and time the consumer is willing to pay.

4. Reasons Farmers Produce Crops

The following question can be a lead-in to illustrating how the goal of making a profit from grain production is related to marketing.

4a. Question: What is *my* goal in producing crops? (See *MFGC Student Workbook*, page 3, #4a.)

Possible student answers:

1. Get high yields
2. Have weed-free crop
3. Have disease-free crop
4. Produce enough grain for my livestock
5. **Make a profit**

(Pick up on the word "profit.")

4b. Question: What factors determine the amount of profit a crop producer can make on a particular crop?
(See *MFGC Student Workbook*, page 3, #4b.)

Possible student answers:

1. Yield
2. Cost of production
3. **Price received when selling grain**

"Price received when selling grain" is a good starting point for leading students into explaining the many local and worldwide influences at play which affect market prices. Students should be encouraged to list as many causes as possible and to be able to determine just why they affect prices. The law of supply and demand will be key to many of them.

5. Why Market Prices Vary

REFERENCE: *MFGC Student Manual*, pages 14-25, Why Market Prices Vary *and* Demand for the Product.

The supply of and demand for grain and soybeans affect the prices at which farmers are willing to sell their products and the prices consumers are willing to pay for their products.

Buyers and sellers must be familiar with both the supply of and demand for a product in establishing a fair market price.

You should have reliable sources of market news available for your students' use. Some sources of this kind of market news are listed in *MFGC Student Manual*, pages 8-11.

Figure 1-4, "Partial Listing of Grain Marketing Information Sources." The list includes public and private sources, both printed and electronic.

The kind of market news information available will depend upon the time of year you are conducting your study. Completing this worksheet may be an ongoing project to teach students that they must think about marketing their grain throughout the year.

5a. Question: What happens to the movement of grain prices throughout the year?
(See *MFGC Student Workbook*, page 3, #5a.)

Answer: Grain prices move up and down throughout the year.

Visual 1-6 Monthly Cash Prices for Soybeans, Wheat and Corn

5b. Question: What causes market prices to fluctuate?
(See *MFGC Student Workbook*, page 4, #5b.)

Answer:
(1) the demand by consumers for a product
(2) the supply of a product made available by producers

This is a complex question for students to answer, but they will have some ideas about the causes of up-and-down price movements. Challenge your students' thinking by raising leading questions and giving simple examples.

6. The Demand for a Product

Situation:

You are attending a baseball game on a very hot sunny day. A soft drink vendor comes by. What do you observe about the demand for the product being offered for sale?

Later in the year you are attending a football game on a very cold, windy day. How does the demand for hot dogs compare with the demand for cold drinks?

Do you think the demand for a product affects the amount of the product that is sold and the price that can be asked?

6a. Question: What is the law of demand?
(See *MFGC Student Workbook*, page 4, #6a.)

Discuss demand for a product with your students and develop a definition which you place on the chalkboard.

Answer: The more of a product there is, the lower the price goes; the lower the price goes, the more of that product can be sold.

Demand for a product can be described as *elastic* or *inelastic*.

Example 1: During a meal, you may eat one or two slices of bread. That is all you want, even though a large amount of bread is available. This is an example of *inelastic* demand.

Example 2: You are visiting your grandparents on a hot summer afternoon, and they make a large freezer full of homemade ice cream. This is one of your favorite foods. You eat and eat, since your parents are not around to tell you to stop. This is an example of *elastic* demand. There is plenty of ice cream available, so you simply increase the amount you eat. This was not true of the bread, even though more was available.

6b. Question: What is elastic demand? Define.
(See *MFGC Student Workbook*, page 4, #6b.)

Answer: A small change in price results in a large change in the amount bought. An increase in supply increases the amount consumed.

6c. Question: What is inelastic demand? Define. (See *MFGC Student Workbook*, page 4, #6c.)

Answer: The demand for a product remains somewhat the same, even as the supply goes up or down. A large drop in price must occur before large quantities of a product with an inelastic demand are sold.

7. Factors Affecting Demand for Grain

REFERENCE: *MFGC Student Manual*, pages 17-21, Factors Affecting Demand for Grain.

Visual 1-7 Crop Market Situation. (Keep this visual handy for reference for the next four pages.)

7a. Question: What factors affect the demand for grain in the U.S.?
(See *MFGC Student Workbook*, page 5, #7a.)

(1) NEED FOR GRAIN IN THE U.S.

7b. Question: How is grain used in the U.S.?
(See *MFGC Student Workbook*, page 5, #7b.)

Answers:

a. Human consumption
b. Livestock feed
c. Industrial production

7c. Question: What is the current domestic use of grain?
(See *MFGC Student Workbook*, page 5, #7c.)

(2) EXPORT NEEDS

7d. Question: What effect does exporting grain have on the total demand for U.S. grain?
(See *MFGC Student Workbook*, page 5, #7d.)

Answer: The more grain we export, the greater will be the demand for U.S. grain. The grain used for export is in addition to our domestic use.

7e. Question: What effect should increased exports have on U.S. grain prices?
(See *MFGC Student Workbook*, page 6, #7e.)

Answer: The increased demand should tend to increase the price of our grain.

7f. Question: What are the current exports of U.S. grain?
(See *MFGC Student Workbook*, page 6, #7f.)

7g. Question: What is carry-out grain?
(See *MFGC Student Workbook*, page 6, #7g.)

Answer: The amount of grain left after domestic and export needs have been met.

7h. Question: What effect will carry-out grain have on grain prices?
(See *MFGC Student Workbook*, page 6, #7h.)

Answer: An increase in the amount of carry-out grain would increase next year's supply and tend to lower prices.

(3) USE OF GRAIN TO MEET HUMANITARIAN NEEDS

7i. Question: What are some humanitarian uses of food?
(See *MFGC Student Workbook*, page 6, #7i.)

a. Food stamps
b. Food kitchens
c. Disaster areas, domestic and foreign
d. (Other)

(4) GENERAL LEVEL OF PROSPERITY

Visual 1-8 Prosperity Level Indicators

7j. Question: Why would the U.S. prosperity level affect the price of grain?
(See *MFGC Student Workbook*, page 7, #7j.)

Answer: The more prosperous the American people are, the more they are able to buy food.

7k. Questions: What are some of the factors that indicate our prosperity level? What is the current condition of our prosperity?
(See *MFGC Student Workbook*, page 7, #7k.)

One source of this information is the current *USDA Agricultural Chartbook*.

Answers:

a. Consumer price index - what consumers have to pay for goods and services.

b. Disposable income - the money that consumers have available to spend for goods and services.

c. Expenditures - the money that consumers have spent for goods and services.

d. Unemployment rate - the number or percentage of people unemployed.
The larger the work force, the more consumers there are to buy goods and services.

The current situation for each should be explored.

(5) SUBSTITUTION OF ONE COMMODITY FOR ANOTHER

71. Question: What influences consumers to substitute one product for another?
(See *MFGC Student Workbook*, page 7, #71.)

Answer: When a product becomes too expensive, a cheaper one that is readily available will be substituted.

For example:
* If wheat becomes cheap in relationship to corn, wheat will be substituted for corn as a livestock feed.
* If ethanol made from corn increases in use as an automobile fuel, the by-product corn gluten meal, if its price becomes more favorable, may replace some soybean meal as a protein supplement.

(6) NEW USES FOR GRAIN PRODUCTS

7m. Question: What are some examples of new uses found for grain and soybeans that will increase demand for these commodities?
(See *MFGC Student Workbook*, page 7, #7m.)

Answer:
* Blending gasoline with alcohol for fuel.
* Adding cornstarch to make plastic containers biodegradable.

8. The Supply of a Product

8a. Question: What is the law of supply?
(See *MFGC Student Workbook*, page 8, #8a)

Discuss the supply of a product with your students and develop a definition. Write it on the chalkboard.

Answer: An increase in the price of a product will create a larger supply of that product as soon as it can be made available. A decrease in price decreases the amount of the product that comes to market and eventually decreases the amount produced.

Situation:

You live on a farm near town on a road with rather heavy traffic. You are trying to think of a way to make some extra money. One idea is to raise sweet corn and sell it at a roadside market constructed near your home. This idea is shared with your parents and Vo-Ag teacher, who are supportive. Your teacher helps you in working out a crop budget to see whether you might be able to make a profit raising and selling sweet corn.

The current sweet corn price is $1.75 per dozen ears. Your estimated total cost of production is $1.35 per dozen. This seems like a good profit margin, so you decide to go ahead with the project. It proves to be quite successful.

The next year you again raise sweet corn. Your costs remain about the same, but due to large supplies brought on by favorable prices, the price has decreased to $1.40 per dozen. This year you did little better than break even.

The following year you decide to cut your production in half. Other sweet corn growers also decrease their production, so the supply is reduced. Before the growing season is over, the price of sweet corn has improved.

Question: When the price of sweet corn was favorable in relation to production costs, what happened to the supply?

Answer: The supply of sweet corn increased.

Question: When the price of sweet corn dropped and was unfavorable in relation to production costs, what happened to the supply?

Answer: As the supply of sweet corn caught up with the demand, the price decreased and the supply decreased.

9. Factors Affecting the Supply of Grain and Soybeans

REFERENCE: *MFGC Student Manual*, pages 21-24, Supply of the Product.

Visual 1-7 Crop Market Situation
Visual 1-9 World and U.S. Food and Feed Grain Trade

9a. Question: What factors affect the supply of grain and soybeans?
(See *MFGC Student Workbook*, page 8, #9a.)

(1) TOTAL ACRES OF CROP PLANTED AND RAISED

Crop reporting services (see *MFGC Student Manual*, pages 8-11, Figure 1-4, Partial Listing of Grain Marketing Information Sources) provide this information and it is divided into three parts:

1. Before the start of the cropping season, projected planting intentions serve as a guide to the potential supply of grain.
2. The report of actual acres planted gives a better estimate of the projected crop supply.
3. Finally, the report of acres harvested provides a more accurate prediction of the actual supply of grain.

Refer to one of the crop information services and have your students determine the current predicted or actual supply of grain and soybeans, as determined by acres intended to be planted, actually planted, and acres harvested. The season of the year you make this study will determine the amount of information available. This is a good time to point out that determining potential and actual crop production should be an ongoing process when preparing a grain marketing plan.

9b. Question: What is the current estimated production of corn, wheat and soybeans?

Using the crop information services available in your vocational agriculture classroom (government reports, commercial reports and computer printouts), determine the current estimated production of corn, wheat and soybeans. (Have your students record the information in *MFGC Student Workbook*, page 8, #9b in the worksheet.)

(2) YIELD PER ACRE

Crop reporting services provide yield-per-acre information which, along with the acres harvested, determines the total supply of grain. (See ***Visual 1-7.***)

Crop reporting services also report weather conditions during planting, growing and harvesting times. Projected yields per acre may also be given.

9c. Question: What is the projected yield per acre of corn, wheat and soybeans?

Using crop information services available in your vocational agriculture department, record the weather conditions and the projected yield per acre of corn, wheat and soybeans. (Have your students record the information in *MFGC Student Workbook*, page 9, #9c in the worksheet.)

(3) CARRY-IN

9d. Question: What is meant by "carry-in" (or "carryover")?
(See *MFGC Student Workbook*, page 9, #9d.)

Answer: The amount of grain in storage at the beginning of the marketing year, which influences the total supply of grain. (See ***Visual 1-7.***)

9e. Question: What is the carry-in of corn, wheat and soybeans for the current marketing year?

(Referring again to ***Visual 1-7***, Crop Market Situation, have your students record this

information in *MFGC Student Workbook*, page 10, #9e.)

9f. Question: What is the ***total supply*** of U.S. corn, wheat and soybeans?

Answer: Acres harvested x yield per acre + carry-in = total supply

(Have your students determine this information and record it in *MFGC Student Workbook*, page 10, #9f.)

(4) WORLD PRODUCTION

REFERENCE: *MFGC Student Manual*, "World Production, " pages 22-24.

Visual 1-9 World and U.S. Food and Feed Grain Trade
Visual 1-10 U.S. Share of the World Soybean Trade

Market news services also provide information concerning growing conditions and total production in other countries of the world.

9g. Question: What is the total U.S. and world production of food and feed grain and soybeans?

(Referring to *Visuals 1-9 and 1-10*, have your students record the information in *MFGC Student Workbook*, page 10, #9g.)

10. Influence of Corn, Wheat and Soybean Production in Other Countries on Price of These Commodities in the U.S.

10a. Question: Why should U.S. farmers be concerned about grain production in other parts of the world?
(See *MFGC Student Workbook*, page 11, #10a.)

Answer: Due to the international grain trade, the production of grain and soybeans in any one country affects the total world supply. *For example*, if soybeans produced in Brazil are exported to Japan, the U.S. market to Japan will probably be reduced.

10b. Question: How can crop-growing conditions, soil fertility, and other production factors in foreign countries affect the total world grain supply?
(See *MFGC Student Workbook*, page 11, #10b.)

Answer: The better the worldwide crop-growing conditions are, the greater the total world grain supply will be.

10c. Question: What are the current growing conditions in other grain-producing countries?
(See *MFGC Student Workbook*, page 11, #10c.)

10d. Question: How might a drought in Brazil affect the supply and price of soybeans in the world market?
(See *MFGC Student Workbook*, page 12, #10d.)

Answer: The total supply would be reduced, and that would tend to increase the price in the world market including the U.S.

10e. Question: How do production costs affect the comparative price advantage of U.S.-produced grain and soybeans?
(See *MFGC Student Workbook*, page 12, #10e.)

Discuss grain and soybean growing practices and production costs in other major producing countries. Use market news reports and farm magazine articles as references to supply current information. Develop an answer to the question and place it on the chalkboard.

Visual 1-11 High Production Costs Cause U.S. Soybeans to be High Priced in Foreign Markets

Favorable soybean-growing conditions in many developing countries and their low production costs put U.S. soybean producers at a disadvantage in the world market. Compare total production costs of Argentina and Brazil with those of the U.S.

11. Other Factors Affecting Grain and Soybean Prices

REFERENCE: *MFGC Student Manual*, pages 24-25, Other Factors Affecting Price.

11a. Question: What other factors affect grain and soybean prices?

Answer: Seven factors are listed and discussed in the text. (See *MFGC Student Workbook*, pages 12-15, #11a.) Ask your students to:

* react to how each item would affect the market.
* study market news reports to identify the current situation, including dates.

The season of the year will influence the kind of information currently available. This is another opportunity to remind your students of the importance of an ongoing study of market news throughout the marketing year.

(1) Large quantities of grain at harvest
  (a) effect on market
  (b) current situation
    corn
    wheat
    soybean

(2) Storage costs
  (a) effect on market
  (b) current situation
    corn
    wheat
    soybeans

(3) Interest charges
  (a) effect on market
  (b) current situation
    corn
    wheat
    soybeans

(4) Available transportation
  (a) effect on market
  (b) current situation
    corn
    wheat
    soybeans

(5) Amount of storage available
  (a) effect on market
  (b) current situation
    corn
    wheat
    soybeans

(6) Government policies
  (a) effect on market
  (b) current situation
    corn
    wheat
    soybeans

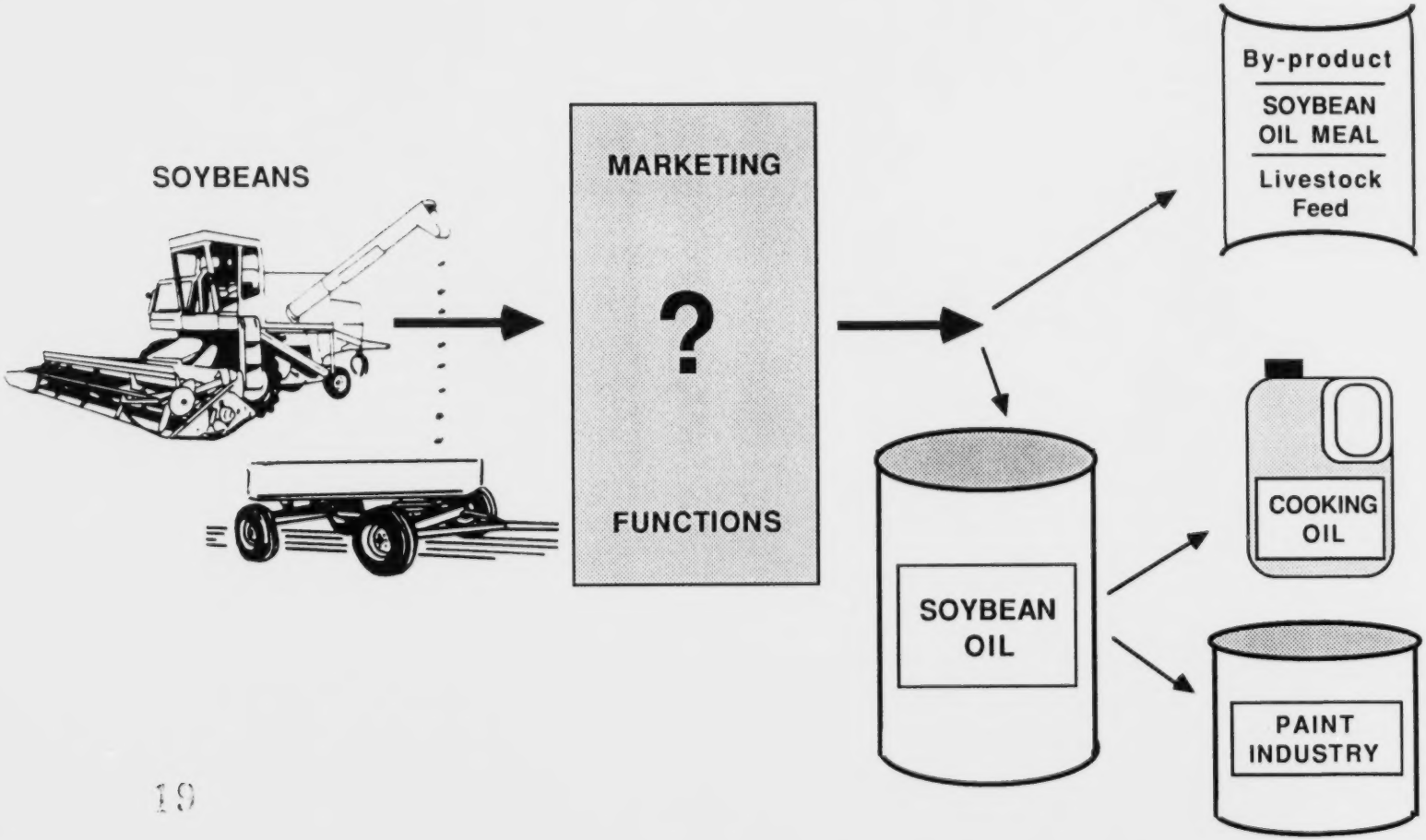
(7) Lack of information

The last item will affect the producer's ability to deal effectively with the market rather than affecting the market as a whole.

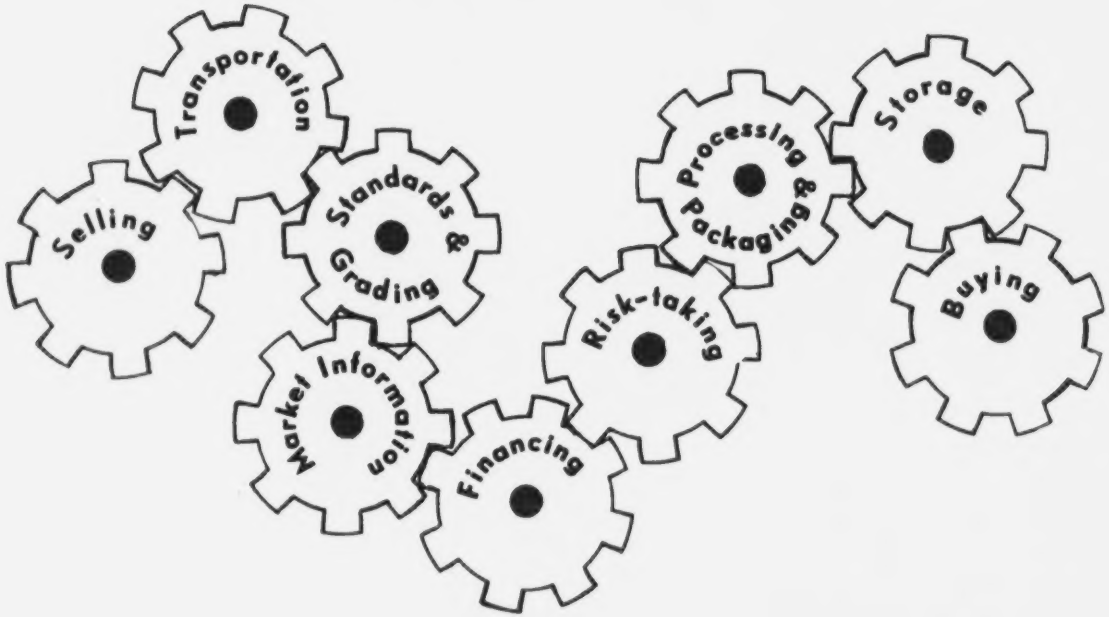
11b. Question: Why is it important for a grain producer to be well-informed concerning the market situation as he/she deals with the grain buyers?
(See *MFGC Student Workbook*, page 15, #11b.)

11c. Question: What sources of market news do you depend on at home and in your vocational agriculture classroom?
(See *MFGC Student Workbook*, page 15, #11c.)

WHAT HAPPENS TO YOUR GRAIN
from the time it leaves your combine until purchased by a consumer?

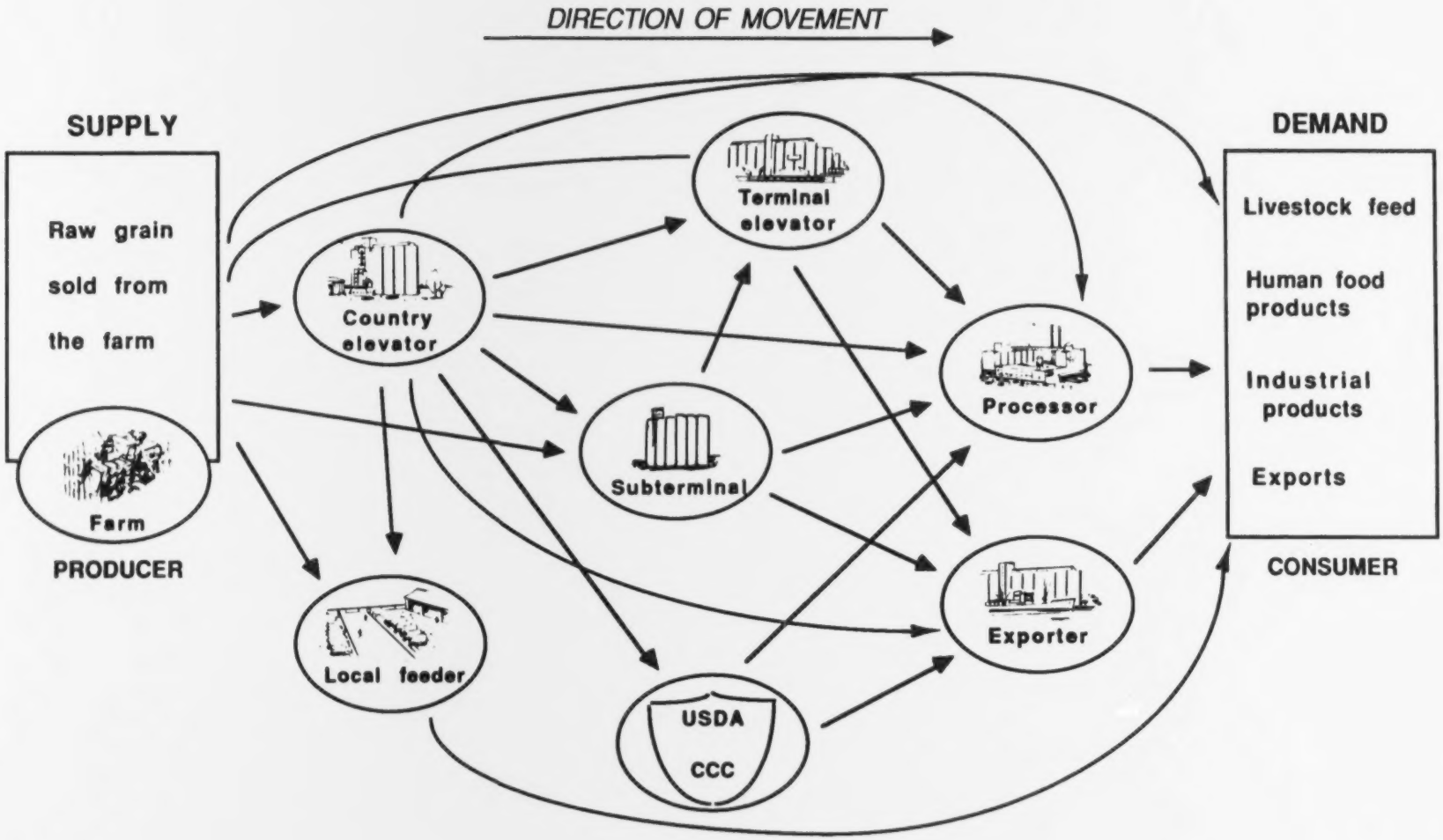


MARKETING FUNCTIONS

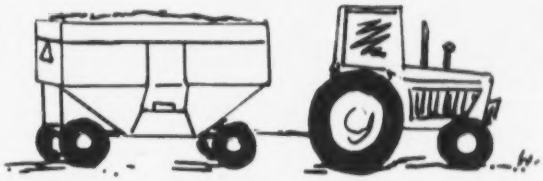


Marketing functions are related to each other and must all work together.

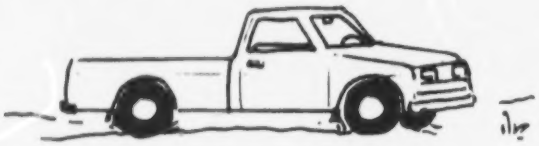
MARKETING CHANNELS



METHODS OF TRANSPORTING GRAIN

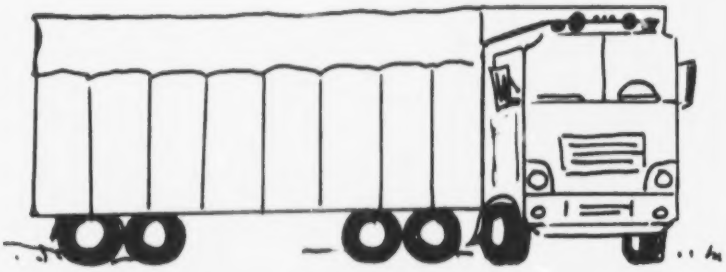


Tractor-drawn hopper wagon

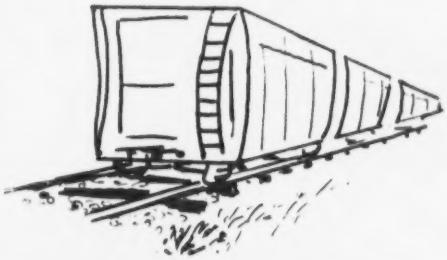


Pick up truck

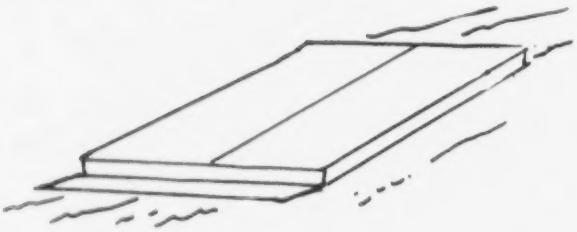
10-wheel semi truck



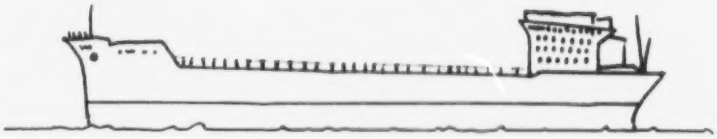
Large grain-hauling semi trailer truck
used by elevators



Railroad hopper cars
used singly or as unit trains

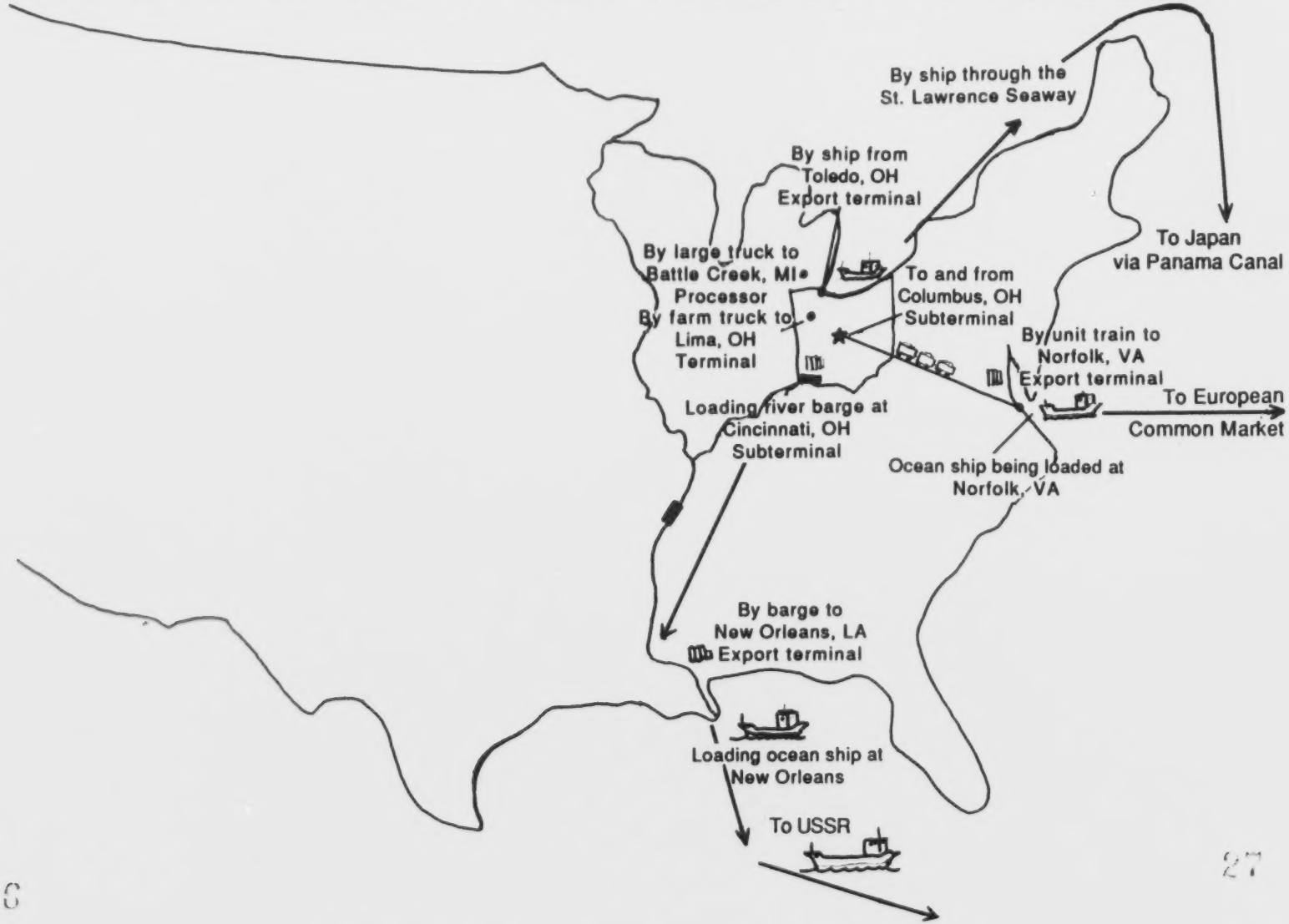


River barge
loaded at river port elevator

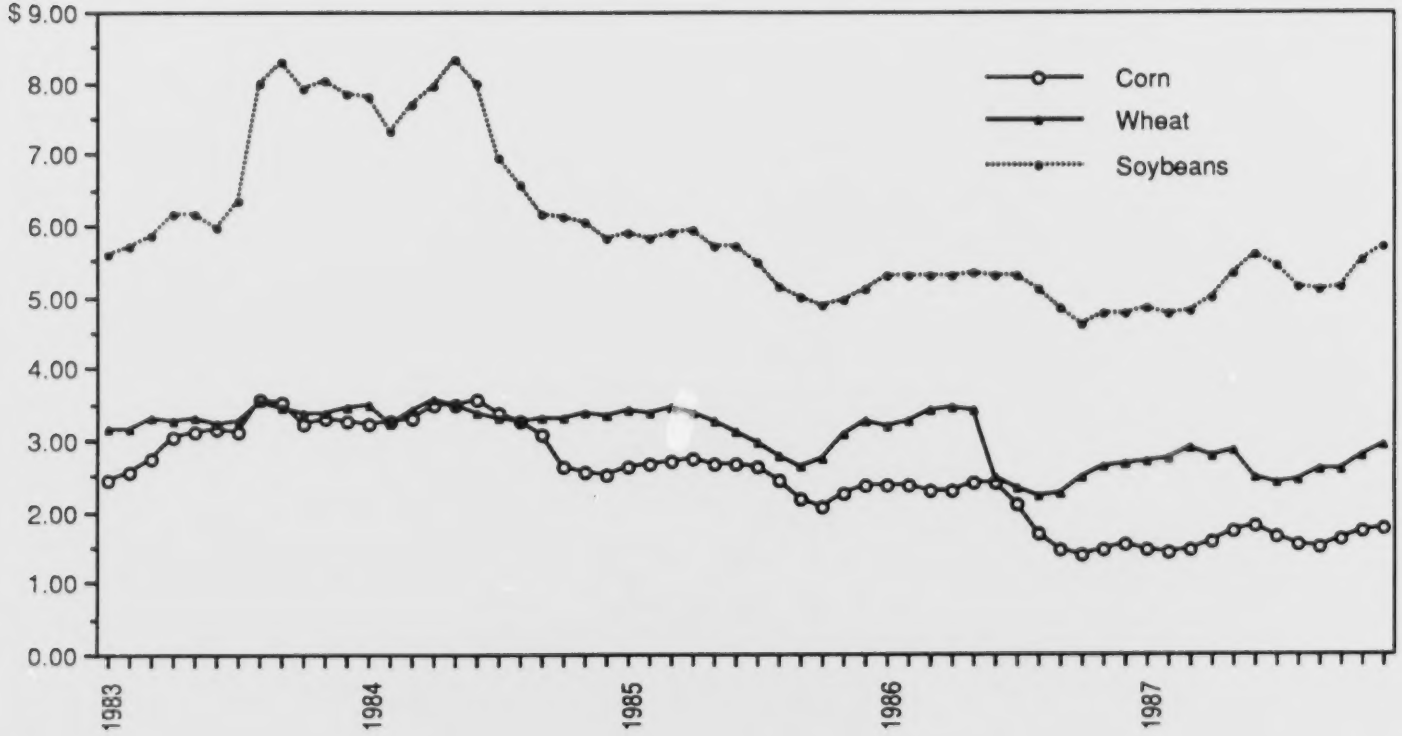


Ocean-going ship
loaded at exporting elevator

MOVEMENT OF GRAIN FROM PRODUCER TO CONSUMER



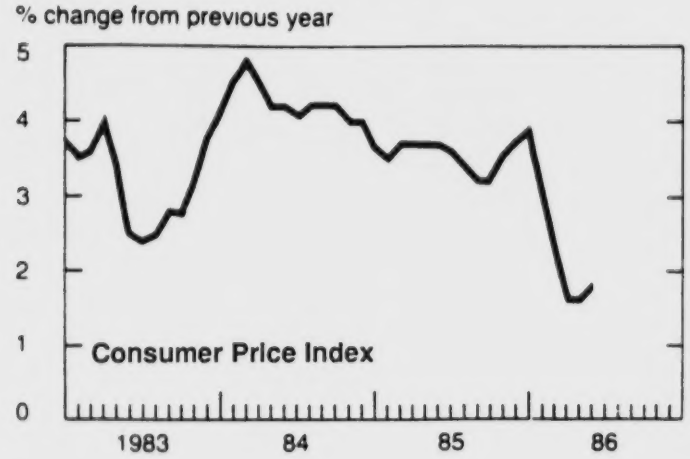
MONTHLY CASH PRICES FOR SOYBEANS, WHEAT AND CORN

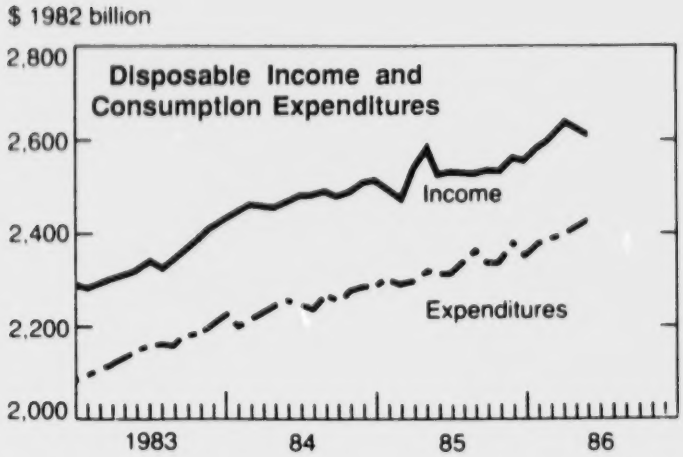


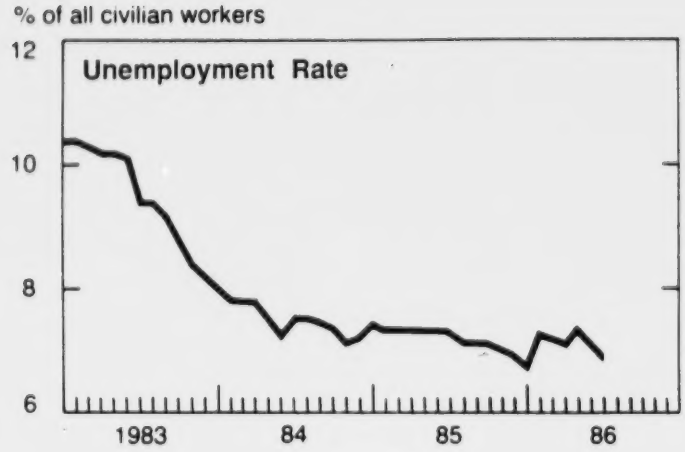
CROP MARKET SITUATION

	SUPPLY					DEMAND				
Crop Year (Sept. 1)	Harvested Acres for Grain (millions)	Yield/A. (bushels)	Production	Carry-In	Total Supply	Domestic Use	Export	Total Demand	Carry-Out	Average Season Price, Ohio
			(millions of bushels)							
			U.S. CORN PRODUCTION, USE AND PRICE							
1981	74.5	108.9	8,118	1,393	9,511	5,013	1,967	6,980	2,534	$2.51
1982	72.7	113.2	8,235	2,534	10,769	5,415	1,834	7,249	3,523	2.67
1983	51.4	81.0	4,175	3,523	7,698	4,792	1,902	6,694	1,006	3.35
1984	71.9	106.7	7,674	1,006	8,680	5,121	1,865	6,986	1,648	2.66
1985	75.1	118.0	8,865	1,648	10,513	5,245	1,241	6,486	4,038	2.19
1986	69.2	119.3	8,253	4,040	12,294	5,908	1,504	7,412	4,882	1.50
1987	59.2	119.4	7,064	4,882	4,948	6,125	1,700	7,825	4,123	1.78
			U.S. SOYBEAN PRODUCTION, USE AND PRICE							
1981	66.2	30.1	1,989	313	2,302	1,119	929	2,048	254	$6.14
1982	69.4	31.5	2,190	254	2,444	1,194	905	2,099	345	5.79
1983	62.5	26.2	1,636	345	1,981	1,065	740	1,805	176	7.73
1984	66.1	28.2	1,861	176	2,037	1,123	598	1,721	316	5.80
1985	62.2	34.1	2,099	316	2,415	1,139	740	1,879	536	5.10
1986	59.2	32.8	1,940	536	2,476	1,283	757	2,040	436	4.92
1987	56.4	33.7	1,905	436	2,341	1,266	785	2,051	290	5.90
			U.S. WHEAT PRODUCTION, USE AND PRICE							
1981	81.6	34.5	2,785	989	3,774	847	1,771	2,168	1,159	$3.55
1982	77.9	35.5	2,765	1,159	3,924	908	1,509	2,417	1,515	3.08
1983	61.4	39.4	2,420	1,515	3,935	1,111	1,429	2,540	1,399	3.40
1984	66.9	38.8	2,595	1,399	3,994	1,154	1,424	2,578	1,425	3.35
1985	64.6	37.4	2,425	1,425	3,850	1,045	915	1,960	1,905	3.01
1986	60.7	34.4	2,092	1,905	4,018	1,193	1,004	2,197	1,821	2.58
1987	55.9	37.6	2,105	1,821	3,941	1,110	1,600	2,710	1,231	2.72

PROSPERITY LEVEL INDICATORS



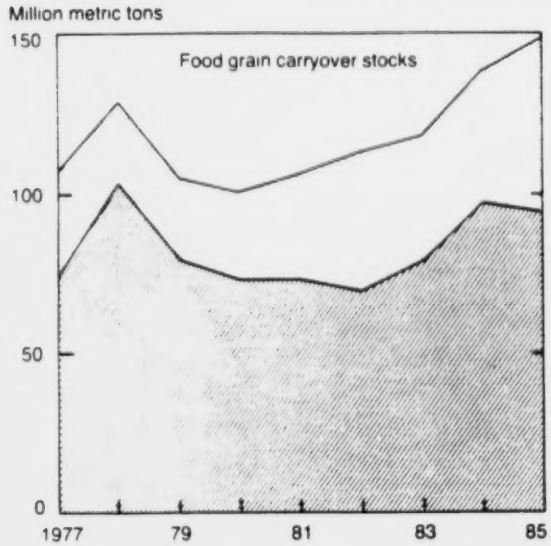


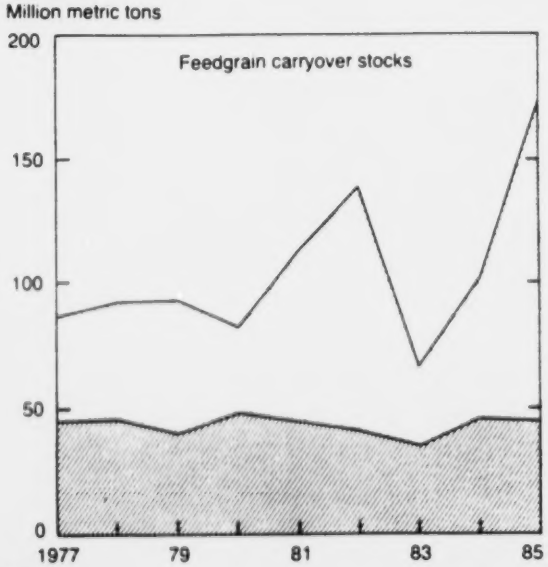


WORLD AND U.S. FOOD AND FEED GRAIN TRADE

CARRYOVER STOCKS

Food Grain

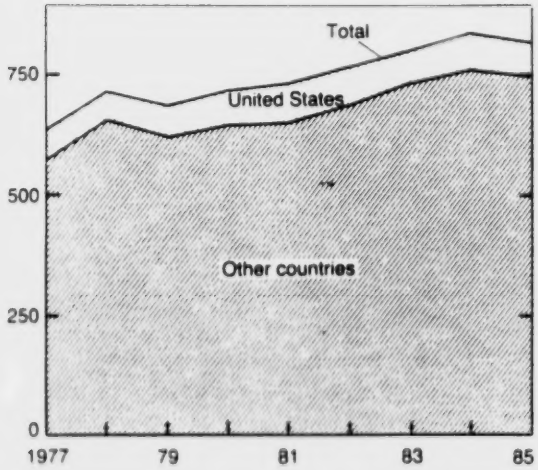


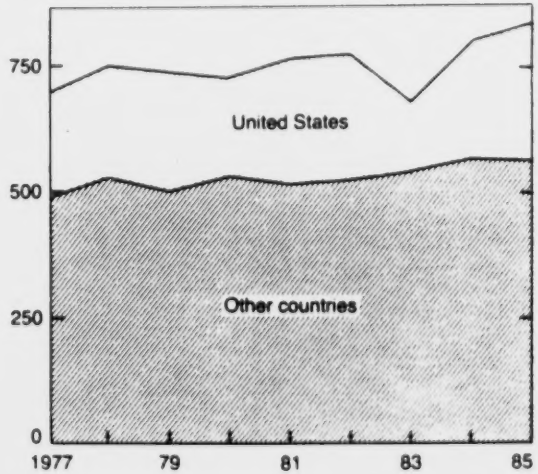


Feed Grain

PRODUCTION

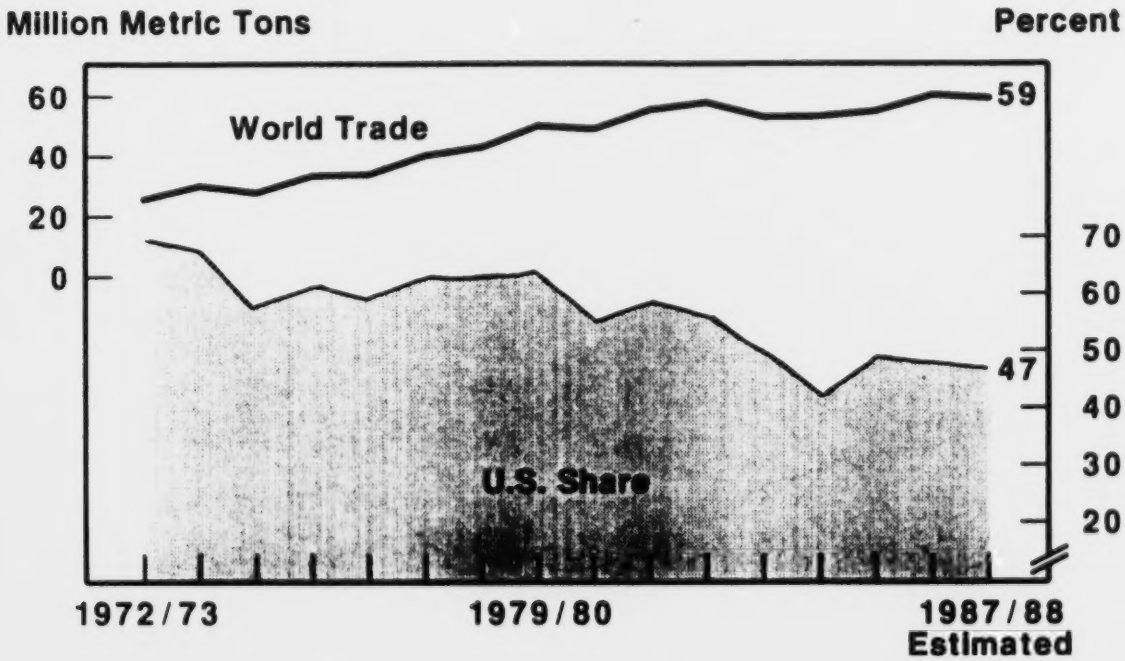
Food Grain





Feed Grain

U.S. SHARE OF THE WORLD SOYBEAN TRADE



HIGH PRODUCTION COSTS CAUSE U.S. SOYBEANS to be HIGH PRICED in FOREIGN MARKETS

Cost Item	Argentina	Brazil	United States
Variable Costs *($/acre)*			
Seed	$11.53	$9.63	$10.48
Fertilizer	--	36.39	7.66
Chemicals	6.66	9.80	18.22
Custom Operations	19.55	--	3.24
Fuel & Lube	9.37	13.79	12.60
Repair	7.38	4.35	7.68
Hired Labor	--	--	--
Miscellaneous	--	4.03	0.24
Interest	1.90	2.65	2.94
Total Variable Costs	$56.39	$80.64	$63.06
Fixed Costs *($/acre)*			
Overhead	--	$1.71	$13.60
Taxes and Insurance	$9.77	3.08	16.47
Capital Replacement	7.74	8.92	27.57
Labor	9.80	4.29	14.43
Interest	5.72	4.29	9.72
Land Charge	15.79	28.26	69.89
Total Fixed Costs	$48.82	$50.55	$151.68
Total Production Costs	$105.21	$131.19	$214.74
YIELD (bu/acre)	**31.2**	**26.8**	**32.9**

CHAPTER 2

GRAIN DELIVERY, GRADING AND STORAGE

Storage

REFERENCE: *Marketing Farm Grain Crops Student Manual*, Chapter 2, Grain Delivery, Grading and Storage, pages 27-68.

Cash sales at harvest give the producer little choice in the price received. Storage for later sale gives the producer more options of when to market the grain and the potential of selling at higher prices. But the grain producer also takes on more risk. The producer needs to consider carefully all costs and risks of any storage plan and balance this against the possibility of price increases over time.

As a result of successfully completing this unit of study, the student should be able to determine the effects of storage for later sale on the net price received for a given production and marketing situation.

1. Question: How can storage of grain affect the market price received for a crop?
(See *MFGC Student Workbook*, page 17, #1.)

Answer:
Farm grain and soybeans are used throughout the year for human food, livestock feed and industrial uses. However, grain and soybeans are harvested during a short period of time (1-3 weeks).

* If all grains were to be sold at harvest time, there would be a temporary over-supply.
* The users of grain do not have storage facilities adequate to hold all grain purchased.
* Storage of grain allows the producer to have some control over the supply of grain on the market by selling the grain as producers bid up the price to get it out of storage.

2. Question: What storage facilities are available to you for storing your grain and soybeans?
(See *MFGC Student Workbook*, page 17, #2.)

Answer:

* off-farm storage (local elevators, grain terminals)
* on-farm storage (corn cribs, wood bin, metal bin, silo, airtight silos for high moisture grain for livestock feed, etc.)

3. Question: What are the various off-farm storage methods?
(See *MFGC Student Workbook*, page 17, #3.)

Write student responses on the chalkboard. If students are not able to define all the types of off-farm storage, refer them to *MFGC Student Manual*, page 29, and complete the list of types of off-farm storage and the characteristics of each.

Answers:

1. Regular storage - price for storage established and quoted by the elevator.

2. Grain bank storage - grain stored at elevator to be used for livestock feed later. Usually the same as regular storage.

3. Warehouse receipt storage - A form of storage (known as W.H.R. storage) used in cases where a farmer may need a negotiable instrument as security in financial arrangements with a banker. Cost is generally somewhat higher than regular storage.

4. Storage Costs

REFERENCE: *MFGC Student Manual*, page 27, Storage Costs.

4a. Question: What two kinds of costs are involved in storing grain? Describe each.
(See *MFGC Student Workbook*, page 18, #4a.)

Answer:
(1) Fixed costs - for the ownership of the

storage facilities. These costs go on whether or not the facilities are being used to store grain.

(2) Variable costs - for the grain in storage. These costs are applicable only when the grain is in storage.

4b. Question: What are the fixed and variable costs of storing grain? List them.
(See *MFGC Student Workbook*, page 18, #4b.)

Visual 2-1 Costs of Grain Storage

5. Riskbearing

There is always risk involved in owning grain whether it is owned by the producer in on-farm or off-farm storage. The same risks are taken by the grain buyers when they purchase and store grain.

REFERENCE: *MFGC Student Manual*, pages 27-28, Riskbearing.

5a. Question: What are the risks involved in owning grain in storage?
(See *MFGC Student Workbook*, page 19, #5a.)

Use ***Visual 2-2*** Risk of Grain Ownership.

Conduct supervised study. Discuss the questions, place student responses on the chalkboard, and then have students write their responses on page 19 of the workbook.

6. On-Farm Storage

REFERENCE: *MFGC Student Manual*, pages 28-29, On-Farm Storage.

Factors farmers consider before using on-farm storage are cited in the text.

6a. Question: What are the advantages and disadvantages of on-farm storage?
(See *MFGC Student Workbook*, page 19, #6a.)

Use ***Visual 2-3*** Important Considerations to Farmers about On-Farm Grain Storage.

Conduct supervised study. Discuss the question and place student responses on the chalkboard. Then have students write their responses on page 19, #6a.

7. Off-Farm Storage

REFERENCE: *MFGC Student Manual*, pages 29-38, Off-Farm Storage.

Farmers without on-farm storage available often consider it more economical to store their grain off the farm in commercial storage facilities.

When you as a grain producer entrust your grain to a storage facility management, you should carefully check their reputation for honesty and fair dealing.

7a. Question: What government certificates and regulations (state and federal) are posted in your local elevator?
(See *MFGC Student Workbook*, page 20, #7a.)

Have your students look in their local elevators or other grain handling facilities for the different certificates that indicate the kind of government regulations that are in force to protect them when they market or store their grain.

7b. Question: When you market or store your grain with a grain handling facility in Ohio, what protection are you provided by the Ohio Department of Agriculture regulations?
(See *MFGC Student Workbook*, pages 20-21, #7b.)

Study ***Visual 2-4*** Protection Provided Grain Producers by Ohio Department of Agriculture through Licensing Grain Dealers.

7c. Question: What methods are available to you for checking the reliability of grain storage owners and managers?
(See *MFGC Student Workbook*, page 21, #7c.)

Study ***Visual 2-5*** Ways of Checking Reliability of Grain Storage Owners and Managers.

Have students record the methods on page 21.

8. Determining Storage Fees

REFERENCE: *MFGC Student Manual*, page 38, Storage Fees; Figure 2-10.

8a. Question: What are the grain and soybean storage rates and conditions of storage at your local elevator?
(See *MFGC Student Workbook*, page 22, #8a.)

Have your students determine grain storage rates at the grain handling facilities they commonly use, either by visiting or calling the facility. The information may be recorded on page 22.

8b. Problem: The service and storage charges for warehouse receipt storage are given in *MFGC Student Manual*, Figure 2-9, Tariff for Storing and Handling Grain, page 37. Using these charges, determine the per-bushel and entire lot charges for storing 10,000 bushels of soybeans stored on October 15 and removed from storage on February 15.
(See *MFGC Student Workbook*, page 23, #8b.)

Solution:

Oct. 15 - Feb. 15	at	$0.03 per bu.
October	16 days	
November	30 days	
December	31 days	
January	31 days	
February	15 days	
Total	123 days	
x $0.001 per day =		$0.123 per bu.

Feb. 15	
Receiving charge	$0.07 per bu.
Loading out charge	$0.08 per bu.
Total service charge	$0.303 per bu.

10,000 bu. x $0.303 = Total $3,030.00

9. Sampling and Testing Grain

REFERENCE: *MFGC Student Manual*, pages 38-41, Sampling and Testing Grain.

All grain to be sold must be sampled and tested by licensed personnel. The seller has three choices concerning the test results and two responsibilities concerning grain quality.

9a. Question: If a producer's grain prices are to be discounted due to test results, what choices does the producer have?
(See *MFGC Student Workbook*, page 23, #9a.)

9b. Question: What are the producer's responsibilities concerning grain quality and loading method of his/her grain?
(See *MFGC Student Workbook*, page 24, #9b.)

9c. Question: Why is it a good practice to know your test results *before* your grain is unloaded?
(See *MFGC Student Workbook*, page 24, #9c.)

After supervised study and discussion, list the choices and responsibilities on the chalkboard.

A pre-arranged field trip to a local grain handling facility would enable students to observe and get a better understanding of grain sampling and testing procedures.

10. Grain Grades and Standards

Because cash sale at harvest is a simple and easily understood method of marketing and familiar to most, it is suggested that cash sale at harvest be the method of marketing used to illustrate that the "quoted" cash prices are for a specific quality of grain and that the net grain prices received by the producer will be determined by the amount of any discounts. The information acquired in this unit can then be applied to grain marketed by other marketing methods. It will not be repeated in detail when the other marketing methods are discussed.

At the conclusion of this unit, the student should be able to determine net cash price after discounts for a given quality of grain.

REFERENCE: *MFGC Student Manual*, pages 41-61, Grain Grades and Standards; Discounts.

After a period of supervised study and discussion, have students complete #10, Grain Grades and Standards, *MFGC Student Workbook*, page 24-26 as follows.

10a. Question: What is the purpose of grading grain?
(See *MFGC Student Workbook*, page 24, #10a.)

REFERENCE: *MFGC Student Manual*, pages 41-45, Grain Grades and Standards.

REFERENCE for 10b-10d: *MFGC Student Manual*, page 45, Moisture Discounts - Grain Shrinkage.

10b. Question: What is the greatest cause of discounts in grain marketing?
(See *MFGC Student Workbook*, page 24, #10b.)

10c. Question: What moisture levels have been established as standards above which discounts will be applied?
(See *MFGC Student Workbook*, page 25, #10c.)

10d. Question: What are the two types of losses in weight when high moisture grain is dried down to the standard moisture content?
(See *MFGC Student Workbook*, page 25, #10d.)

10e. Problem: Calculate the pounds shrinkage in the following situations. (Have students fill in *MFGC Student Workbook*, page 25, #10e.)

Answers to the problem: (See table at bottom of page.)

DISCOUNTS OTHER THAN FOR MOISTURE AND DRY MATTER

10f. Question: What factors in addition to moisture and dry matter loss can cause grain prices to be discounted?
(See *MFGC Student Workbook*, pages 25-26, #10f.)

REFERENCE: *MFGC Student Manual*, pages 46-47.

Visual 2-6 Discounts Used by Grain Handlers

Answer:
- Test weight
- Foreign material
- Shrunken or broken kernels (damage)
- Musty, heating, sour, insects, hot
- Treated
- Others

10g. Question: What is the official test weight per bushel for each of the following?
(See *MFGC Student Workbook*, page 26, #10g.)

	Official Weight	Minimum Weight
Wheat	60 lb	(No. 2) 57 lb
Corn	56 lb	(No. 2) 54 lb
Soybeans	60 lb	(No. 2) 54 lb

CORN DISCOUNTS OTHER THAN FOR MOISTURE

Have students calculate corn discounts other than for moisture in the problems given in #10h, *MFGC Student Workbook*, page 26.

10h. Exercise: Using information from the Corn Discount Sheet (*MFGC Student Manual*, Figure 2-22, page 49) determine the following discounts (at the top of the next page).

Secure a discount sheet from your local elevator to compare to the one in Figure 2-22.

Weight of Grain (lb)	% Moisture in Grain	% Moisture Desired	Shrink Factor (from chart)	Pounds Shrinkage
1,000	25.5	15.0	12.85%	128.5
16,500	26.0	15.0	13.44	4290.0
7,500	18.0	13.5	5.70	427.5
12,720	21.5	13.5	9.75	1240.2
142,850	16.0	13.0	3.95	5642.6
6,230	13.5	13.0	1.07	66.7

	DISCOUNTS		
	Test Weight	**Other**	**Total**
1. 52.5 lb test weight	.02	.00	.02
2. 54 lb test weight	.00	.00	.00
3. 51 lb test weight 8.4% damaged grain	.03	.06	.09
4. 49.5 lb test weight	.06	.00	.06
5. 51.5 lb test weight Hot	.03	.15	.18
6. 53.5 lb test weight 6% damaged grain	.01	.01	.02
7. 52.5 lb test weight 3.5% foreign material	.02	.01	.03
8. 55 lb test weight 2.7% heat damage	.00	.12	.12
9. 51 lb test weight Sour	.03	.15	.18
10. 56 lb test weight Musty	.00	.05	.05

11. Determining Net Value of Grain

11a. Exercise: Have your students use the same Corn Discount Sheet (*MFGC Student Manual*, Figure 2-22, page 49) to determine the value of the following load of corn:

weight 12,700 lb **price of No. 2 corn quoted $2.27 per bu**
tested 23.4% moisture (See *MFGC Student Workbook*, page 27, #11a.)

Solution:

12,700 lb wet corn ÷ 56 = 226.78
226.78 bu wet corn
x $0.25 drying charge per wet bu
$56.70 drying charge

	Discounts:
Test weight 49.0 lb	$0.06
Damage 7.0%	0.02
Foreign matter 5.5%	0.05
Musty ✓	0.05
Total discount	$0.18 per bu

Price No. 2 corn $2.27
Less discount − 0.18
Net price $2.09 per bu

12,700.0 lb wet corn
x 0.124 shrinkage
1,574.8 lb shrinkage

12,700.0 lb wet corn
− 1,574.8
11,125.2 lb dry corn ÷ 56 = 198.66 bu

198.66 bu dry corn
x $2.09 net price
$415.21
− 56.70 drying charge
$358.51 value of load

11b. Exercise: Have your students use the Soybean Discount Sheet (*MFGC Student Manual*, Figure 2-27, page 57) to determine the net value of the following load of soybeans:

weight 14,280 lb **quoted price $5.51 per bu**
tested 13.7% moisture (See *MFGC Student Workbook*, pages 27-28, #11b.)

Solution:

14,280 lb wet soybeans ÷ 60 = 238
238 bu wet soybeans
x $0.02 drying charge per wet bu
$4.76 drying charge

	Discounts:
Test weight 53.5 lb	$0.01
Damage 2.4%	0.02
Heat 0%	0.00
Splits 25%	0.0025
Other 0%	0.00
Total discount	$0.0325 per bu

Price soybeans	$5.51
Less discount	- 0.0325
Net price	$5.4775 per bu

14,280 lb wet soybeans
x 0.17 shrinkage
242.76 lb shrinkage

14,280.00 lb wet soybeans
- 242.76
14,037.24 lb dry soybeans ÷ 60 = 233.95 bu dry soybeans

233.95 bu dry soybeans
x $5.4775 net price
$1,281.46
- 4.76 drying charge
$1,276.70 value of load

11c. Exercise: Have your students use the Wheat Discount Sheet (*MFGC Student Manual*, Figure 2-28, page 60) to determine the net value of the following load of wheat:

weight 12,300 lb **quoted price $3.06 per bu**
tested 14.3% moisture (See *MFGC Student Workbook*, page 28, #11c.)

Solution:

12,300 lb wet wheat ÷ 60 = 205
205 bu wet wheat
x $0.02 drying charge per wet bu
$4.10 drying charge

	Discounts:
Test weight 57.8 lb	$0.01
Damage 4.2%	0.01
Shrunken & broken kernels 5.8%	0.01
Total discount	$0.0325 per bu

Price wheat	$3.06
Less discount	- 0.03
Net price	$3.03 per bu

12,300 lb wet wheat
x 0.16 shrinkage
196.8 lb shrinkage

12,300.0 lb wet wheat
- 196.8
12,103.2 lb dry wheat ÷ 60 = 201.72 bu dry wheat

201.72 bu dry wheat
x $3.03 net price
$ 611.21
- 4.10 drying charge
$ 607.11 value of load

---

12. Keeping Discounts to a Minimum

REFERENCE: *MFGC Student Manual*, pages 59, 61.

12a. Question: What practices can be used to keep discounts to a minimum?
(See *MFGC Student Workbook*, page 29, #12a.)

Review with students those items which cause discounts on grain sales such as high moisture, damaged grain, low test weight, weed seeds or foreign material. Suggest that students consider listing practices for reducing risk of discounts under two areas, production practices and harvesting practices.

Possible answers:

PRODUCTION PRACTICES (Have students list as many as possible.)

1. Select varieties and time of planting which will result in grain that is mature and low in moisture at time of harvest.
2. Use production practices that will prevent weed growth or reduce weeds to a minimum.
3. Use varieties of grain likely to have a satisfactory test weight.
4. (Others)

HARVESTING PRACTICES

1. Check moisture at harvest time; if possible, avoid harvesting high moisture grain.
2. Adjust combine so as to minimize damaged kernels.
3. Adjust combine so as to minimize the amount of foreign material.
4. (Others)

OTHER PRACTICES

1. Keep grain free of animal filth or parts.
2. Prevent material such as dirt, gravel, glass or other material from getting into the grain.
3. Keep grain from *heating* in storage.

13. Records of Sales Transactions

REFERENCE: *MFGC Student Manual*, pages 61-67.

13a. Question: What records are made of the grain transaction by the elevator at the time of the cash grain sale? How can these records be used? (See *MFGC Student Workbook*, page 30, #13a.)

The answers to these questions can be found by drawing on students' knowledge, visiting a local elevator, or student study of the above reference.

Answer:
1. Scale tickets
2. Settlement sheets

Elevators that have a computerized recordkeeping system may not use actual settlement sheets. The information found on a settlement sheet would be kept on the computer. Scale tickets are required by law.

These answers can lead to the following questions and procedures.

13b. Question: What is the purpose of the scale ticket?
(See *MFGC Student Workbook*, page 30, #13b.)

REFERENCE: *MFGC Student Manual*, pages 61-62, Issuing Scale Tickets.

Visual 2-7 Scale Ticket

Answer:
1. The scale ticket is the basis for settlement.
2. It assures the seller that the important information of the grain transaction is properly recorded.

   Lead from Item 2 into the next question.

13c. Question: What information is required on the scale ticket?
(See *MFGC Student Workbook*, page 30, #13c.)

* Students can be asked to bring in copies of scale tickets to compare and identify the kinds of information included.

* Have students study the information about scale tickets in the above reference. The following list should be developed on the board and the meaning of each defined. Then students may record the information in their workbooks.

Items that the Ohio Department of Agriculture requires on each scale ticket:

1. Name and address of company
2. Date
3. Ticket number (in numerical order)
4. Indication of "inbound" or "outbound"
5. Name of depositor (inbound) or consignee (outbound)
6. Kind of grain
7. Gross, tare, and net weight, and provisions for adjustment of quality factors
8. Price, if sold
9. Provisions for indicating if the commodity is *sold, storage,* on purchase *contract, delayed price, feed agreement,* or *grain bank.* (The number of these items will depend on how many of these functions the company performs.)
10. A clause referring to contracts; for instance: "The commodity delivered on this scale ticket is or will be covered by contractual agreement of warehouse receipts between the parties involved."
11. Driver on or off scale
12. Name or initials of weigher

Besides these 12 required items, there may also be such items as time in and time out, truck license number, and the actual dollar value of the load.

13d. Question: What information is on the settlement sheet and how is it used?
(See *MFGC Student Workbook*, page 31, #13d.)

REFERENCE: *MFGC Student Manual*, Figure 2-35, page 67.

Have students refer to the Grain Settlement Sheet (Figure 2-35) to study the information on it and find out what purpose it serves. Some elevators have this information on a computer printout.

Students should recognize the Grain Settlement Sheet as an explanation and record of the procedure used in arriving at the amount of payment for the grain.

Student Activity

Obtain settlement sheets from the local elevator and compare with the one in the Student Manual (Figure 2-35, page 67). Have students fill in the local elevator settlement sheet(s) using the figures given in the Student Manual settlement sheet.

Visual 2-8 Grain Settlement Sheet

Grain must meet several quality standards to receive the quoted cash price. The price is discounted if the grain falls below limits of these standards. The student should be able to define the discounts that apply, how to determine them, and what practices can be used to minimize discounts.

14. Methods of Off-Farm Storage of Grain

REFERENCE: *MFGC Student Manual*, pages 63-64, Methods of Off-Farm Storage of Grain

14a. Question: What methods of off-farm storage of grain are available to farmers?
(See *MFGC Student Workbook*, pages 31-32, #14a.)

After supervised study and discussion, have the students list and briefly describe each off-farm storage method.

Answer:

1. Regular storage
2. Warehouse receipt
3. Grain bank
4. Feed agreement
5. Government storage

15. Precautions to Take When Delivering Grain to an Elevator

REFERENCE: *MFGC Student Manual*, page 66, Summary.

15a. Question: Depending upon the way you have sold your grain, what records of the transaction will the elevator provide?
(See *MFGC Student Workbook*, page 32, #15a.)

Answer:

1. Scale ticket for all transactions
2. Contract if one is entered into
3. Warehouse receipt if this type of storage is used

15b. Question: What should you do with the record of your grain sale transaction after you receive it? Why?
(See *MFGC Student Workbook*, page 32, #15b.)

Answer:
Save all records and file where they can be located.

Do not depend upon the elevator to keep your records for you. They might be destroyed by fire or accident.

COSTS OF GRAIN STORAGE

Fixed Costs

- Depreciation on Buildings and Equipment
- Interest on Capital Investment
- Maintenance
- Property Taxes
- Insurance on Structures and Equipment

Variable Costs

- Drying, Aeration - Electricity and Fuel
- Interest on Grain
- Labor, Management
- Insurance on Grain
- Loss of Quality While in Storage
- Loss of Grain Due to Rodents, Excess Drying, and Handling
- Transportation of Grain to Storage Facilities

RISK OF GRAIN OWNERSHIP

Natural Hazards - Fire, wind, water, flooding, etc. (may be covered by insurance)

Deterioration - Loss of quality during storage

Decline in Price - with no loss in quality

Change in Consumer Preference

Increase in Supply Without Like Increase in Demand

Decline in General Business Conditions

Increase in Dollar Value - In relationship to foreign money.

Political Decisions - Grain embargoes, price supports, acreage restrictions, etc.

IMPORTANT CONSIDERATIONS TO FARMERS ABOUT ON-FARM GRAIN STORAGE

ADVANTAGES

1. Gain more control over marketing grain by increasing marketing period.
2. Avoid selling grain at harvest when price is usually lowest.
3. Avoid waiting in line at harvest time.
4. Avoid the increase in drying charges of some elevators at harvest.
5. Enjoy storage all year at the same fixed cost.

DISADVANTAGES

1. On-farm storage demands extra attention to marketing.
2. It demands extra attention to storage to avoid loss.
3. Capital investment is required for facilities whether used or not.
4. Cost of on-farm storage may not be cheaper than off-farm storage.
5. Holding grain increases risk.

PROTECTION PROVIDED GRAIN PRODUCERS BY OHIO DEPARTMENT OF AGRICULTURE THROUGH LICENSING OF GRAIN DEALERS

1. Grain handler must have adequate net worth.
2. Grain handlers deposit funds with Ohio Department of Agriculture to pay grain depositers for losses that might occur.
3. Grain handler keeps accurate records.
4. Grain handler is responsible for maintaining quality of grain.
5. Grain deposited for storage must be held by warehouse in like quality and grade for delivery on demand (bailment storage).
6. Grain handler must have insurance for facilities and commodities stored.
7. A signed agreement must be on file for each delayed price arrangement.
8. Sampling and testing of grain must be done by certified personnel.
9. All of the above safeguards are subject to inspection by the Ohio Department of Agriculture.

WAYS OF CHECKING RELIABILITY OF GRAIN STORAGE OWNERS AND MANAGERS

PERSONAL CHECKS

1. Your past experiences, if any, at the facility
2. Your friends' and neighbors' experiences at the facility

GOVERNMENT SAFEGUARDS - Look for certificates displayed in facility.

State: Required of all Ohio grain dealers.

1. Agricultural Commodity Handler license
2. Verification of Attendance at Grain Grading School
3. Agricultural Commodity Tester certificate
4. Indemnity Fund Claim Form (may not be displayed)
5. Are state grain warehouse receipts available?

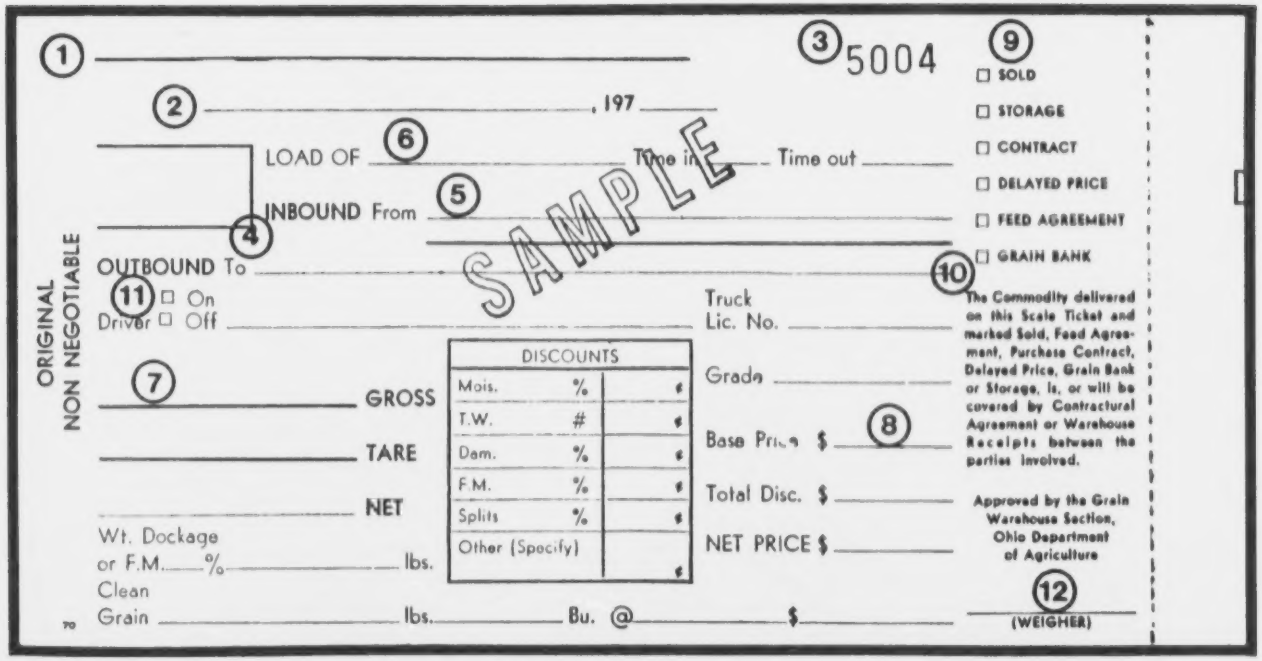
Federal: Some Ohio grain dealers may not be Federally Licensed.

1. Federal USDA License Certificate
2. USDA grain weighing and inspection certificate
3. Copy of tariff and storage fees
4. Are grain warehouse receipts available?

DISCOUNTS USED BY GRAIN HANDLERS

- Moisture
- Test weight
- Foreign material
- Shrunken or broken kernels
- Musty, heating, sour, insects
- Others

SCALE TICKET



1. Name and address of company
2. Date
3. Ticket Number
4. Indicator of inbound or outbound
5. Name of depositor or consignee
6. Kind of grain
7. Gross, tare and net weight and provisions for adjustment of quality factors
8. Price, if sold
9. Indication if the commodity is sold, on purchase contract, delayed price, storage, or grain bank.
10. Clause referring to contracts
11. Driver on or off scale
12. Name or initials of weigher

BEST COPY AVAILABLE

GRAIN SETTLEMENT SHEET

KIND _____ NAME _____ % SOLD _____

BRANCH _____ ADDRESS _____ CONTRACT NO. _____

STORAGE:

GOV. LOAN _____

NAME _____ % REGULAR _____

LEASED _____

NAME _____ % GRAIN BANK _____

DATE	SCALE TICKET NO.	TEST WEIGHT	MOIST.	DMG	FM / DKG	UNLOADED WEIGHT	POUNDS SHRINK DOCK.	NET WEIGHT	NET BUSHELS	BASE PRICE	CENTS DISC.	SETTLE-MENT PRICE	VALUE	DRYING	
														RATE	CHARGE

TOTAL ..... $ _____

LESS: TRUCKING _____ $ _____

DRYING _____

STORAGE _____ BU. @ _____ ¢ FOR DAYS _____

_____

_____

_____

AMOUNT _____ $ _____

_____ MARKETING CARD NUMBER

_____ WAREHOUSE RECEIPT NUMBER

_____ DATE

_____ CHECK NO.

LMR, 1701 (10/71)

CHAPTER 3

KINDS OF GRAIN MARKETS

REFERENCE: *Marketing Farm Grain Crops Student Manual*, Chapter 3, Kinds of Grain Markets, pages 69-99.

There are two kinds of grain markets: the cash market and the futures market. However, each basic kind of marketing has several variations in the way it may be used in transferring title to grain. The use of these variations will be discussed in Chapter 4, Marketing Alternatives.

The purpose of this chapter is to develop an understanding of how the futures market works and how it may be used as a guide in developing your grain marketing plan.

1. Question: What two basic kinds of grain markets are available to you to sell your grain? (See *MFGC Student Workbook*, page 33, #1.)

REFERENCE for questions 1 and 2: *MFGC Student Manual*, pages 69-71, Cash Sale of Grain and The Futures Market.

Answer:
1) Cash market
   * cash market at harvest or from storage
   * forward contracts
2) Futures market

Visual 3-1 Two Markets

2. Question: What determines the cash price bid for your grain at any given time? (See *MFGC Student Workbook*, page 33, #2.)

This information was developed in Chapter 1 in the study of market news sources.

Visual 3-2 The World, National and Local Supply and Demand for Grain Determine Local Grain Prices

3. Futures Market

REFERENCE: *MFGC Student Manual*, The Futures Market, pages 69-72.

Making use of a futures contract is another way the grain producer can "lock in" a guaranteed market price. But, unlike the contract, a futures contract is not as readily used by many producers because of additional complexities such as requiring margin money in the transaction and requiring a minimum of 5,000-bushel lots on the Chicago Board of Trade and 1,000-bushel lots on the Mid-American Commodity Exchange. Transactions are conducted through brokers and at distant locations. In general, this market method is viewed as involving more "red tape." However, in addition to being a means to guarantee a specific market price, using a futures contract has some advantages that contract marketing does not have. The farmer can get out of a futures contract if the price goes unfavorably, and usually a higher price can be obtained through futures contracts. Futures contracts offer some alternative features that may make it possible for the producer to do a better job of marketing grain. As a result of studying this unit, the student should be able to describe how a futures contract is transacted and define how the use of the futures market could affect the market price received for his or her grain.

The following techniques, questions and activities may be used to increase student interest.

The first series of activities can be used to increase the students' curiosity about terminology used in futures marketing and to develop an interest in studying about the area of futures markets.

* Play for the class a tape recording of a market report from the Chicago Board of Trade.

* Have the class listen to a live report from ABN broadcasting.

* Videotape a segment of a TV program dealing with futures prices.

Show changes in futures prices through the year by showing:

Visual 3-3 July Corn Futures for Chicago Board of Trade. (This chart can be updated with current information.)

Use a computer printout showing grain price quotations.

Or show ***Visual 3-4*** Example of Computer Printout of Futures Price Quotations.

Ask leading *questions:*

* What is meant by "Corn December futures settle at $1.97"?

* What is meant by "Wheat, July, up 2 1/4"?

* What does a radio announcer mean by the statement, "The corn market today is bullish"?

At this point, students are not expected to answer these questions, nor should they be given the answers. Rather, the questions point up the degree of need for study.

3a. Question: What is a futures contract?
(See *MFGC Student Workbook*, page 33, #3a.)

3b. Question: What does it mean to be *long* on the futures market? *short* on the futures market?
(See *MFGC Student Workbook*, page 33, #3b.)

3c. Question: What is the usual procedure for handling grain delivery in a futures market contract?
(See *MFGC Student Workbook*, page 34, #3c.)

REFERENCE: *MFGC Student Manual*, pages 72-73, Futures Contracts.

3d. Question: Why is it desirable to establish a futures price for a commodity?
(See *MFGC Student Workbook*, page 34, #3d.)

Answer: Processors need grain throughout the year. They must know the price to determine their costs and ultimately to set the price for consumers in the grocery store.

Farmers should know what to expect for their grain before they plant.

3e. Question: Why should you consider using the futures market when marketing your grain?
(See *MFGC Student Workbook*, page 34, #3e.)

Answer: So that you can establish a price for which you can sell your grain at a future time. The price may be established before planting, during the growing season, or after grain is in storage.

3f. Question: Why would you consider using the futures market when you can establish a price for your grain by entering into a contract with the local elevator?
(See *MFGC Student Workbook*, page 34, #3f.)

Answer:
1) The farmer is able to get out of a futures contract if the price goes against him/her.

2) However, there is more "red tape" with futures.

3) Usually higher prices can be obtained through futures.

4. Futures Market Participants

REFERENCE: *MFGC Student Manual*, page 73, Futures Market Participants.

Visual 3-5 Futures Market Participants

4a. Question: Who are the two groups of people who use the futures market? Describe them.
(See *MFGC Student Workbook*, page 35, #4a.)

Answer:
* Hedgers who fix a price for a commodity
* Profit seekers who make money on up-and-down price movements

4b. Question: Who are the members of each group of futures market users? Identify them.
(See *MFGC Student Workbook*, page 35, #4b.)

(See reference for the *answer*.)

5. Reading the Futures Quotations

Futures market quotations are given in television market reports, newspaper market reports, and computers. *The Wall Street Journal* has one of the most complete grain quotation sections available in the trade. These sources of market information have been discussed in Chapter 1.

Interest Techniques

Secure copies of *The Wall Street Journal*. (Subscriptions for six months are available at educational rates; copies may be obtained from a library; or copies may be available from local businesses at no cost, but a day late.) When all students are supplied with copies of the futures quotations, refer to the sample quotation in *MFGC Student Manual*, page 74, Figure 3-4, to learn the meaning of terms used in the quotations.

5a. Question: What is the meaning of the following terms that appear in grain market quotations?
(See *MFGC Student Workbook*, pages 36-37, #5a.)

CBT
KC
MPLS
open
high
low
settle (or close)
change
lifetime high and low
1/4, 1/2, 3/4
open interest
estimated volume
volume (+ day of the week)
2722, 2724, *and* 2726

6. Technical Price Analysis

REFERENCE: *MFGC Student Manual*, pages 76-80, Technical Price Analysis.

The two approaches that are used by traders in anticipating grain price changes can be used simultaneously. They deal with the **fundamental** side and the **technical** side of the market. The fundamental side of the market was considered in Chapter 1. The technical side of the market is very briefly discussed in this section of the *Student Manual* so that students will become familiar with it. It is not recommended to go into greater detail.

6a. Question: The grain market has a fundamental and a technical side. Briefly, what does each of these terms mean?
(See *MFGC Student Workbook*, page 37, #6a.)

6b. Question: When studying the technical side of the market and reading grain market news reports, you will see references to bulls and bears, bull markets and bear markets. What do these terms mean?
(See *MFGC Student Workbook*, pages 37-38, #6b.)

7. Mechanics of Futures Trading

REFERENCE: *MFGC Student Manual*, pages 80-81, Mechanics of Futures Trading.

After studying the above reference, discuss the steps recommended and have your students outline the procedure they would follow in hedging their grain by answering the following question.

Situation:
In November you harvested and stored 6,000 bushels of corn on your farm. You then decided to sell your corn in March using the futures market to hedge the transaction.

7a. Question: What steps would you follow in establishing and ending the hedge? Outline the steps.
(See *MFGC Student Workbook*, pages 38-39, #7a.)

Sample answer:

1) Contact a broker whose firm is a member of the Chicago Board of Trade.

2) Enter into an agreement to sell one contract (5,000 bushels) of No. 2 corn on March futures.

3) The broker will ask that you pay a certain amount of margin or "good faith" money. This is money that guarantees that you will fulfill the contract.

4) The broker, through his or her representative on the Board of Trade, will offer the contract for sale at a price specified or at the prevailing price during the trading period. If the sale has been completed, you will know within a short period of time. The contract has, of course, been bought by a speculator.

5) If the corn is to be sold for cash later in the marketing year, you would not let the futures contract mature. Instead, you would close out the futures contract at a later date by buying a futures contract at that time. The broker would charge a round turn commission and return the margin money.

6) The corn would be sold for cash at the time of closing out the futures contract.

Your students will need to understand the meaning of certain grain trading terms in order to complete the hedging transaction. Refer them to the Glossary (*MFGC Student Manual*, pages 163-171) as a source of help.

7b. Definitions: Define the grain marketing terms that you encounter in completing a hedging transaction.
(See *MFGC Student Workbook*, page 39, #7b.)

These terms may be defined at the time the procedure for hedging is being discussed.

Sample definitions:

Hedging - reducing the risk of owning grain in storage from market price changes by buying or selling an offsetting amount of futures contracts.

Broker - representative of an agency registered with Commodities Exchange Authorities and authorized to make futures transactions.

Contract - specified amount of a commodity to be traded at one time.

Mid-American Exchange Contracts - mini-contracts of 1,000 bushels.

Chicago Board of Trade Contracts - 5,000-bushel contracts of corn, wheat or soybeans.

Margin - deposit of "good faith" money made to a brokerage house and in turn deposited by the brokerage house with the futures exchange. This margin is returned to the trader after the contract has been closed out.

Margin call - notice that additional margin money is needed to keep the contract in force. This could come because the market went strongly against the position of the trader.

Round turn commission - fee charged by the brokerage house for completing a buying and selling transaction.

Keep in mind the *situation*, the purpose of which is to set a price for corn in March. On the chalkboard, list the four steps in the transaction:

1. Store corn in November
2. Sell March futures in November
3. Buy March futures in March
4. Sell cash corn in March

7c. Question: What are the costs encountered when trading in the futures market? Define them.
(See *MFGC Student Workbook*, pages 39-40, #7c.)

After discussing the costs of dealing in the futures market, have the students identify those costs and define them in their workbooks, pages 39-40, #7c.

Study ***Visual 3-6*** Commission Sheet, and ***Visual 3-7*** Margin Requirements.

7d. Exercise: Using the hedging problem presented in *MFGC Student Workbook*, page 38, #7a, determine the required margin deposit and the interest charge in the following situation. (Assume the current rate of interest is 8%.) (See *MFGC Student Workbook*, page 40, #7d.)

Situation:
On November 15 you hedged your store of corn by selling one 5,000-bushel contract of March corn futures. On this date, March corn futures were $1.97 per bushel. The margin requirement is 10% of the contract value.

On March 15 you closed out your hedging position by buying one March corn futures contract.

Computation for the exercise:

Interest on margin money:

5,000	bushel contract
x $1.97	March futures price in November
$9,850.00	value of one contract
x 0.10	margin requirement 10% of contract value
$985.00	margin money
x .08	yearly interest rate
$78.80	interest charge for one year

$78.80 ÷ 12 mo. = $6.57 interest for one month

$6.57	monthly interest
x 4	months (Nov. 15 - March 15)
$26.28	interest at 8% on margin in May for four months

8. The Basis

REFERENCE: *MFGC Student Manual*, pages 82-99, The Basis.

It has been established that there are two grain markets, the cash market where grain is sold for immediate delivery and the futures market where grain is sold for delivery at some specified date in the future. Since the cash market and the futures market each move up and down somewhat independently, farmers, grain merchants and grain traders are interested in the relationship of the two markets. Understanding this relationship aids grain buyers and sellers in anticipating changes over time in the cash grain price. This knowledge of basis can be used as a tool in determining the best grain marketing alternative to use.

8a. Question: What is *basis* (that is, how do you calculate it)?
(See *MFGC Student Workbook*, page 40, #8a.)

Answer: Basis is always the cash price, the minuend, minus the futures price, the subtrahend. The remainder is the basis and takes the sign of the greater.

8b. Question: If the cash price of corn at your local elevator was $1.76, and the March futures price at Chicago was $2.01, what would be the basis on November 28?
(See *MFGC Student Workbook*, page 40, #8b.)

Answer:

minuend	$1.76	Local cash price
subtrahend	- 2.01	Chicago futures price
remainder	- $0.25	Basis -$0.25 or .25 under futures

8c. Question: What is the cash basis? Describe it.
(See *MFGC Student Workbook*, page 41, #8c.)

Answer: The difference between the cash price and the price of the nearest futures.

8d. Question: If the November 17 cash price of corn is $1.87 and the December futures price is $2.09, what is the cash basis?
(See *MFGC Student Workbook*, page 41, #8d.)

$1.87	Local cash price
- 2.09	Chicago December futures price
-$0.22	Cash basis

8e. Question: What is the basis on futures other than the nearest futures month (present basis)?
(See *MFGC Student Workbook*, page 41, #8e.)

Answer: When the basis is considered on a futures month other than the nearest futures month.

8f. Question: If the November 12 cash price of corn is $1.78 and the May futures price is $2.16, what is the basis on the May futures? Note that this is for a futures trading month that is not the nearest futures trading month, which is December.
(See *MFGC Student Workbook*, page 41, #8f.)

Answer:

$1.78	local cash price
- 2.16	Chicago May futures price (not the nearest month)
-$0.38	basis under May futures

9. Historic or Normal Basis

The more information a farmer or grain trader has about the performance of the basis over a period of time, the better he/she will be able to use the current basis in making grain marketing decisions.

If your vocational agriculture department is not now maintaining grain price and basis records, this would be a good time to initiate the practice.

Visual 3-8 Grain Price Record shows a simplified form that may be used in maintaining grain price records. The blank Grain Price Record on the opposite page may be duplicated for student use.

Visual 3-9 Weekly Basis Chart shows a more detailed form that can be used to show the basis for more than one grain market. A blank Weekly Basis Chart, included on page 43 of the *MFGC Student Workbook*, may be duplicated for student use.

9a. Question: What is the historic or normal basis? Define.
(See *MFGC Student Workbook*, page 41, #9a.)

REFERENCE: *MFGC Student Manual*, page 83, The Historic Basis.

Answer:
The historic or normal basis is the history of the basis over a period of years and is based on grain marketing records.

9b. Question: How is the historic or normal basis determined?
(See *MFGC Student Workbook*, page 41, #9b.)

Answer:
Identify the basis for the same month and day from grain marketing records for a period of years. To determine the average or historic basis, add these basis figures and divide the sum by the number of years considered.

9c. Question: The following figures show the basis for corn in the second week of November for the past five years. What is the historic or normal basis?
(See *MFGC Student Workbook*, page 44, #9c.)

1983	- $0.05
1984	- 0.22
1985	- 0.26
1986	- 0.35
1987	- 0.12
	- 1.00

-$1.00 (sum of five years) ÷ 5 years =
- $0.20 historic or normal basis

10. Basis as a Relationship between Cash and Futures Prices

REFERENCE: *MFGC Student Manual*, pages 83-89, Basis as a Relationship between Cash and Futures Prices.

The historic basis may be displayed in several different ways that can make the information more meaningful to your students. (See the above reference.)

Visual 3-10 Relationship of Cash Corn Prices to CBT July Futures Prices
(Also, Figure 3-15, *MFGC Student Manual*, page 86.)

The cash and futures prices are charted so that the difference between the two is clearly shown.

GRAIN PRICE RECORD

_____ Prices for _____ (month)

Cash Basis	Date		Cash Price	Futures Prices-Chicago Board of Trade			
		19 ___					
		19 ___					
	First Week	19 ___					
		19 ___					
		19 ___					
		19 ___					
		19 ___					
	Second Week	19 ___					
		19 ___					
		19 ___					
		19 ___					
		19 ___					
	Third Week	19 ___					
		19 ___					
		19 ___					
		19 ___					
	Fourth Week	19 ___					
		19 ___					
		19 ___					
		19 ___					

10a. Question: What do you see in Figure 3-15, page 86 of *MFGC Student Manual* as regards cash and futures price relationships? Describe.
(See *MFGC Student Workbook*, page 44, #10a.)

Answer:

* The cash and futures prices move up and down during the year.
* The cash and futures prices tend to come together as the marketing year advances.
* At two places on the chart the cash price is higher than the futures price.

10b. Question: Why do the cash and futures prices fluctuate?
(See *MFGC Student Workbook*, page 44, #10b.)

Answer: The supply of and demand for grain changes during the marketing year.

Visual 3-11 Local Basis for a Local Elevator
(Also, Figure 3-16, *MFGC Student Manual*, page 86.)

10c. Question: In Figure 3-16, page 86 of *MFGC Student Manual*, are the cash and futures prices shown?
(See *MFGC Student Workbook*, page 44, #10c.)

Answer: They are not shown.

10d. Question: What does the horizontal straight line on the chart represent?
(See *MFGC Student Workbook*, page 44, #10d.)

Answer: The July futures price.

10e. Question: Does this mean that the July futures is the same for the entire year?
(See *MFGC Student Workbook*, page 45, #10e.)

Answer: It does not. The previous figure (Figure 3-15) charts the futures price movement.

10f. Question: What does the fluctuating line on this chart show?
(See *MFGC Student Workbook*, page 45, #10f.)

Answer: The difference between the cash price and the futures price at any one time, which is the basis.

11. Running Basis

REFERENCE: *MFGC Student Manual*, page 87, Figure 3-17.

Visual 3-12 Running Basis for Wheat

11a. Question: What do the vertical lines on the chart represent?
(See *MFGC Student Workbook*, page 45, #11a.)

Answer:
As the market year advances, the nearest futures delivery month changes as a particular futures month such as March wheat is passed. The cash basis or the basis for the nearest futures month then changes or rolls over to the next futures month which is May wheat. This is called a *running basis*; the change in basis from one delivery month to the next is shown by the vertical lines.

If your vocational agriculture department has a computer, the running basis can be shown on a computer printout similar to the graphic illustration of Figure 3-17, page 87 in *MFGC Student Manual*.

12. Review of Basis Charting

As a review of basis charting, show your students:

Visual 3-13 July Corn Basis
(Also, Figure 3-20, *MFGC Student Manual*, page 88.)
Data used for this graph are given in Figure 3-21, page 89.

12a. Question: What is the relationship of the basis for each of the four years to the average basis shown by the bold line on the chart?
(See *MFGC Student Workbook*, page 45, #12a.)

Answer: The basis is much greater during some years than during others.
(The reason for this difference and what it means to grain traders will be developed as the study of grain marketing progresses.)

13. Offering a Premium for Grain

REFERENCE: *MFGC Student Manual*, page 90, Offering a Premium for Grain.

Review Visuals 3-10 and 3-11.

13a. Question: In Figure 3-15 (*MFGC Student Manual*, page 86), what happened to the relationship between the cash price and the futures price of corn during the months of April and June?
(See *MFGC Student Workbook*, page 45, #13a.)

Answer: The cash price, which is usually lower than the futures price, went above the futures price.

13b. Question: In Figure 3-16 (*MFGC Student Manual*, page 86), what happened to the basis during the two months mentioned in the previous question?
(See *MFGC Student Workbook*, page 46, #13b.)

Answer:
The basis became a plus figure rather than a minus figure.
A plus basis is sometimes called an *inverted basis*.

13c. Question: What situation can produce a plus, or inverted, basis?
(See *MFGC Student Workbook*, page 46, #13c.)

Answer: A local elevator, needing grain to fill a contract or for some other reason, bids up the local cash price of grain until it is above the futures price.

13d. Question: If your local elevator is bidding $2.04 for cash corn on January 12, and the CBT March futures price is $1.98, what is the cash basis?
(See *MFGC Student Workbook*, page 46, #13d.)

$2.04	Local cash bid January 12
-1.98	CBT March futures price
+$0.06	Cash basis over March futures

Remember that when subtracting, the remainder or the cash basis takes the sign of the greater, which is the minuend or the local cash bid.

14. Carrying Costs for Grain Sold on the Futures Market

REFERENCE: *MFGC Student Manual*, page 90, Carrying Costs for Grain Sold on Futures Market.

Visual 3-14 Futures Prices Advance Enough from One Delivery Month to the Next to Cover Additional Carrying Charges
Visual 3-15 Effect of Transportation Charges on Basis

It has just been pointed out that the local basis will be under the futures price of grain except in unusual circumstances where a local elevator bids up the cash price of grain. After supervised study and discussion, your students should have a better understanding of basis and be ready to answer the following questions.

14a. Question: In theory and usually in practice, the local cash price of grain is usually below the nearest CBT futures price. Why?
(See *MFGC Student Workbook*, page 46, #14a.)

Answer: The difference between the cash price and the futures price (basis) should equal the cost of carrying the grain from harvest to the nearest futures delivery month.

14b. Question: What are the costs included in the carrying charges for grain in storage? (Refer again to Visual 3-14.)
(See *MFGC Student Workbook*, page 46, #14b.)

Answer:
1. Elevator price
2. Transportation
3. Insurance
4. Shrink
5. Interest
6. Storage

14c. Question: Why is there an increase in the basis spread as the marketing year advances from one futures delivery month to the next?
(See *MFGC Student Workbook*, page 47, #14c.)

Answer: As the marketing year advances, the increased time the grain is carried causes an increase in carrying costs.

14d. Question: If the spread in the basis declines from the December futures to the July futures, what does this signal to producers?
(See *MFGC Student Workbook*, page 47, #14d.)

Answer:
Futures prices are not being bid high enough to cover the carrying charges.
Producers should not store their grain.

15. Basis and Local Transportation Costs

REFERENCE: *MFGC Student Manual*, pages 90-92.

Visual 3-15 shows that, as the marketing year advances, the cash price at the local level and the CBT futures price tend to come together except for transportation charges from the local elevator to the futures contract delivery point.

15a. Question: As the marketing year advances, why do the cash price and the futures price of grain tend to come together?
(See *MFGC Student Workbook*, page 47, #15a.)

Answer: The carrying charges for grain in storage decrease as the time remaining in storage decreases.

15b. Question: Except in unusual situations, why will the local elevator cash price never quite meet the futures price at the end of the futures contract?
(See *MFGC Student Workbook*, page 47, #15b.)

Answer: Because there are transportation charges for the grain from the local elevator to the futures contract delivery point.

QUOTING BASIS

REFERENCE: *MFGC Student Manual*, page 92, Quoting Basis Rather than Cash or Futures Prices.

Review Visual 3-13, Local Historic Basis for Corn in a Local Elevator, and Visual 3-14, Futures Prices Advance.

15c. Question: Why is it common in the grain trade to quote the basis rather than the actual cash price?
(See *MFGC Student Workbook*, page 47, #15c.)

Answer:
- The fluctuation of the basis is more predictable than the cash grain price.
- Carrying and transportation charges are known and these elements have a great influence on the basis.
- Changes in supply and demand that have a great influence on cash price changes are often difficult to predict.
- Arbitrage actions of speculators tend to bring the cash price and the futures price together as the delivery month approaches.

16. Interpreting Basis Patterns

By this time your students should have a good understanding of what basis is and some of the elements that cause it to change through the marketing year. The objective now is to help your students to interpret the basis and use this information in making grain marketing decisions. Remind your students that using basis in grain marketing is not limited to hedging in the futures market. Understanding and interpreting basis patterns can be useful in determining the most profitable marketing alternatives to use.

REFERENCE: *MFGC Student Manual*, pages 92-94, Interpreting Basis Patterns.

Visual 3-16 Improving Basis (*MFGC Student Manual* Figure 3-24)
Visual 3-17 Improving Inverted Basis (*MFGC Student Manual* Figure 3-25)
Visual 3-18 Weakening Basis (*MFGC Student Manual* Figure 3-26)

The visuals can be used in explaining the answers to the following questions.

16a. Question: During the marketing year, the basis may improve (strengthen or narrow) or weaken (widen). What happens to the basis

when it is improving? when it is weakening?
(See *MFGC Student Workbook*, page 48, #16a.)

16b. Question: On October 5 the December corn futures price is $2.05 and the local cash price is $1.74. On November 15 the futures price is $2.06 and the cash price is $1.86. According to these figures, is the basis strengthening or weakening? By how much?
(See *MFGC Student Workbook*, page 48, #16b.)

	Oct. 5	Nov. 15
Local price	$1.74	$1.86
Futures price	- 2.05	- 2.06
Basis	- 0.31	- 0.20

Answer: The basis may be referred to as improving (or narrowing or strengthening) by -$0.11 (-$0.31 - (-$0.20) = -$0.11).

16c. Question: On October 5 the December corn futures price is $2.09 and the local cash price is $1.88. On November 15 the futures price is $2.07 and the cash price is $1.72. Is the basis strengthening or weakening? By how much?
(See *MFGC Student Workbook*, page 48, #16c.)

	Oct. 5	Nov. 15
Local price	$ 1.88	$1.72
Futures price	- 2.09	- 2.07
Basis	- $0.21	- $0.35

Answer: The basis may be referred to as weakening (widening) by -$0.14 (-$0.35 - (-$0.21) = - $0.14).

16d. Question: On December 10 the July corn futures price is $2.17 and the local cash price is $2.31. On January 5 the July futures price is $2.26 and the cash price is $2.34. Is the basis strengthening or weakening? By how much?
(See *MFGC Student Workbook*, page 49, #16d.)

	Dec. 10	Jan. 5
Local price	$2.31	$2.34
July futures	- 2.17	- 2.26
Basis	+$0.14	+$0.08

Answer: This is an inverted basis and is becoming weaker as it narrows by $0.06 ($0.14 - $0.08 = $0.06).

16e. Question: On December 15 the March futures price for corn is $2.26 and the local cash price is $1.98. On January 15 the March futures price is $2.28 and the cash price is $1.86. Is the basis strengthening or weakening? By how much?
(See *MFGC Student Workbook*, page 49, #16e.)

	Dec. 15	Jan. 15
Cash price	$1.98	$1.86
March futures	- 2.26	- 2.28
Basis	- $0.28	- $0.42

Answer: The basis may be referred to as weakening or widening by -$0.14 (-$0.28 - (-$0.42) = -$0.14.)

17. Using Historic or Normal Basis

REFERENCE: *MFGC Student Manual*, pages 92-94, Historic (Normal) Basis.

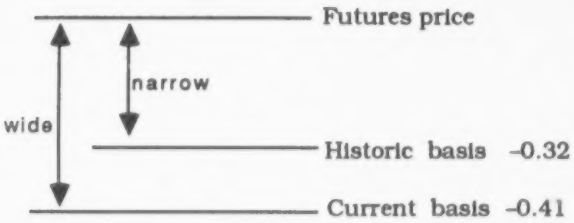
Grain marketing price records from which the historic or normal basis can be determined may be used to predict futures grain price movements. The current cash basis may be strong or weak in relation to the historic basis.

17a. Question: What is the relationship of the current basis to the historic basis when the basis is strong? when the basis is weak?
(See *MFGC Student Workbook*, page 49, #17a.)

Visual 3-19 Current Basis in Relation to Historic Basis

17b. Question: On November 15 your price records show that the historic (normal) basis for March corn is 32 under (-$0.32). On this same day the local cash price is $1.70 and the March futures price is $2.11. Is the current basis strong or weak in relation to the historic basis?
(See *MFGC Student Workbook*, page 50, #17b.)

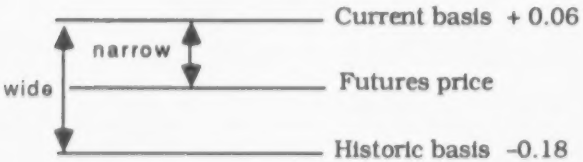
Nov. 15	Cash price	$1.70
Nov. 15	March futures	-2.11
	Basis	- $0.41



Answer: The current basis of -0.41 is weaker (wider) than the historic basis of -0.32.

17c. Question: On December 20 your price records show that the historic (normal) basis for March corn is 18 under (-$0.18). On this same day the cash corn price is $2.19 and the March futures price is $2.13. Is the current basis strong or weak in relation to the historic basis?
(See *MFGC Student Workbook*, page 50, #17c.)

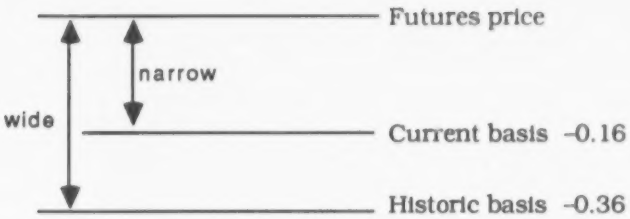
Dec. 20	Cash price	$2.19
Dec. 20	March futures	- $2.13
	Basis	+ $0.06



Answer: The current basis is inverted and is strong (narrow) in relation to the historic basis.

17d. Question: On January 15 your price records show that the historic (normal) basis for March corn is 36 below (-$0.36). On this same day the cash price of corn is $1.87 and the March futures price is $2.03. Is the current basis strong or weak in relation to the historic basis?
(See *MFGC Student Workbook*, page 50, #17d.)

Jan. 15	Cash price	$1.87
Jan. 15	March futures	- 2.03
	Basis	- $0.16



Answer: The current basis (- 0.16) is strong in relation to the historic basis (- 0.36).

18. Factors Affecting Basis Strength

REFERENCE: *MFGC Student Manual*, pages 94-95, Factors Affecting Basis Strength.

18a. Exercise: Indicate whether the following conditions (in the table at the top of page 33) tend to strengthen or weaken the basis.
(See *MFGC Student Workbook*, page 51, #18a.)

18b. Question: What usually happens to the strength of the basis as the futures contract delivery month approaches? What are the reasons for this?
(See *MFGC Student Workbook*, page 51, #18b.)

Review Visual 3-14 Futures Prices Advance, and Visual 3-15, Basis Tends to Improve (Narrow) as the Futures Delivery Month Approaches. See *MFGC Student Manual*, pages 94-95, for answers.

18c. Question: What are the sources of information about basis that are available to you in your vocational agriculture department and at home? List them. (See *MFGC Student Workbook*, page 51, #18c.)

Answer: This could include the available printed market news publications, computer services, and television and radio market news reports.

18d. Question: How is the worldwide grain market considered by the CBT in establishing prices related by the basis to your local grain market prices? Explain.
(See *MFGC Student Workbook*, page 52, #18d.)

	Strengthen	Weaken
1. Grain buyers want more grain than farmers have available or are willing to sell.	✔	
2. Grain buyers do not have enough storage space to hold the grain that farmers have to sell.		✔
3. Poor harvesting conditions result in high-moisture grain at harvest.		✔
4. There is a shortage of railroad hopper cars to transport grain from local elevators to terminals.		✔
5. The cost of building storage has increased from $1.50 to $1.80 per bushel.		✔
6. Interest rates have decreased from 18% to 15%.	✔	
7. As the marketing year advances from the harvesting season, the need for storage and transportation decreases.	✔	
8. You sell your grain to an exporter located on a river where barges are usually used to ship grain. However, the river freezes and the exporter has to use railroad cars, a more costly method.		✔

REFERENCE: *MFGC Student Manual*, pages 95-97, Basis Relates Local Markets to World Markets.

Visual 3-20 Chicago Board of Trade (CBT) Gives Worldwide Consideration to the Grain Market

19. Some Uses of Basis in Grain Marketing

REFERENCE: *MFGC Student Manual*, pages 97-99, Some Uses of Basis in Grain Marketing.

The exercises presented in this section are designed to give the students experience in using basis information in making grain marketing decisions.

19a. Question: The strength of the basis (a strong basis or a weak basis) suggests a general rule of grain marketing. What is this rule?
(See *MFGC Student Workbook*, page 52, #19a.)

19b. Question: When the basis is strong, what are grain buyers signaling to farmers? What are some conditions in the grain marketing channels that produce these signals?
(See *MFGC Student Workbook*, page 52, #19b.)

19c. Question: When the basis is weak, what are grain buyers signaling to farmers? What are some conditions in the grain marketing channels that would produce these signals?
(See *MFGC Student Workbook*, page 52, #19c.)

19d. Question: Using the following information, what do you estimate a farmer would be charged for storing corn from November 15 to July?
(See *MFGC Student Workbook*, page 53, #19d.)

Situation:

✱ Cash price corn, Nov. 15	$1.72
✱ July corn futures, Nov. 15	$2.29
✱ Historic basis for July	–$0.25

19d. *(continued)*

Cash price Nov. 15	$1.72
July futures Nov. 15	$2.29
Basis Nov. 15	- $0.57
Nov. 15 basis, July corn	- $0.57
Historic basis, July corn	- $0.25
Payment for storage	$0.32 per bushel

If the farmer's actual storage costs plus interest costs were less than this, hedging and storing would be profitable.

19e. Question: Using the following information, what price would you estimate will be paid for soybeans in May?
(See *MFGC Student Workbook*, page 53, #19e.)

Situation:

* May soybean futures close on Nov. 1	$5.13
* Historic basis in May	- $0.27
May soybean futures Nov. 1	$5.13
Historic May soybean basis	- $0.27
Potential price in May	$4.86

Answer: The potential soybean price in May is $4.86. For this price to be realized, the futures price would need to remain the same and the historic basis to become the actual basis.

19f. Question: Using the following information, what basis is the elevator using on June 3 when quoting a contract delivery price for corn to be delivered at harvest?
(See *MFGC Student Workbook*, page 54, #19f.)

Situation:

* Dec. corn futures close on June 3	$2.03
* Contract price for harvest delivery	$1.62

Cash contract price for harvest delivery	$1.62
Dec. corn futures on June 3	- $2.03
Basis used in determining contract price	-$0.41

Your price records show the historic basis for corn at harvest to be -$0.27. Is this a strong bid for the corn?

19g. Exercise: Using the following information, compare the elevator's contract price offer for soybeans to be delivered at harvest, with the potential price of soybeans at harvest. (See *MFGC Student Workbook*, page 54, #19g.)

Situation:

* Nov. soybeans close on June 20	$6.17
* Contract price offer for harvest delivery on June 20	5.60
* Historic basis at harvest	-0.47
Nov. soybean futures on June 20	$6.17
Nov. soybean historic basis	- 0.47
Potential harvest price	$5.70

Compare the solid contract price offer of $5.60 for soybeans delivered at harvest with the potential price of $5.70, which is speculative.

19h. Exercise: Using the following information, determine whether basis improvement would cover the storage costs and make a profit for storing the grain.
(See *MFGC Student Workbook*, page 55, #19h.)

Situation:

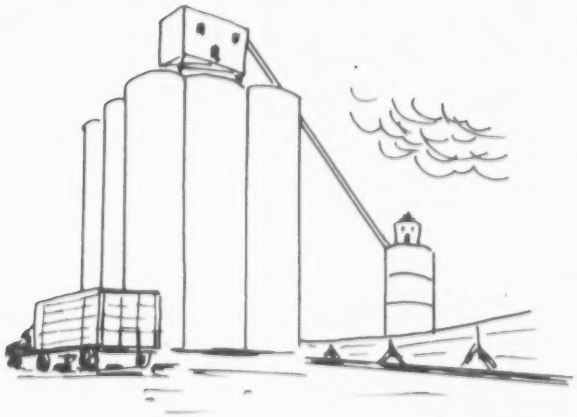
* Storage costs plus interest November-May	$0.28
* Nov. 15 cash corn price	2.12
* Nov. 15 May futures close	2.76
* Historic basis in May	- 0.25
Nov. 15 cash price	$2.12
Nov. 15 May futures close	- 2.76
Nov. 15 basis on May futures	- 0.64
Historic basis in May	- 0.25

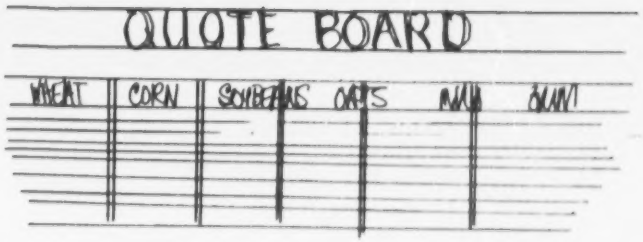
Expected basis gain Nov. 15 - May	0.39
Storage and interest costs	- 0.28
Expected gain from basis improvement	$0.11

If the corn were stored and the - 0.25 historic basis became the actual basis in May, the basis improvement would pay the $0.28 storage costs plus $0.11 gain.

TWO MARKETS

Cash Market

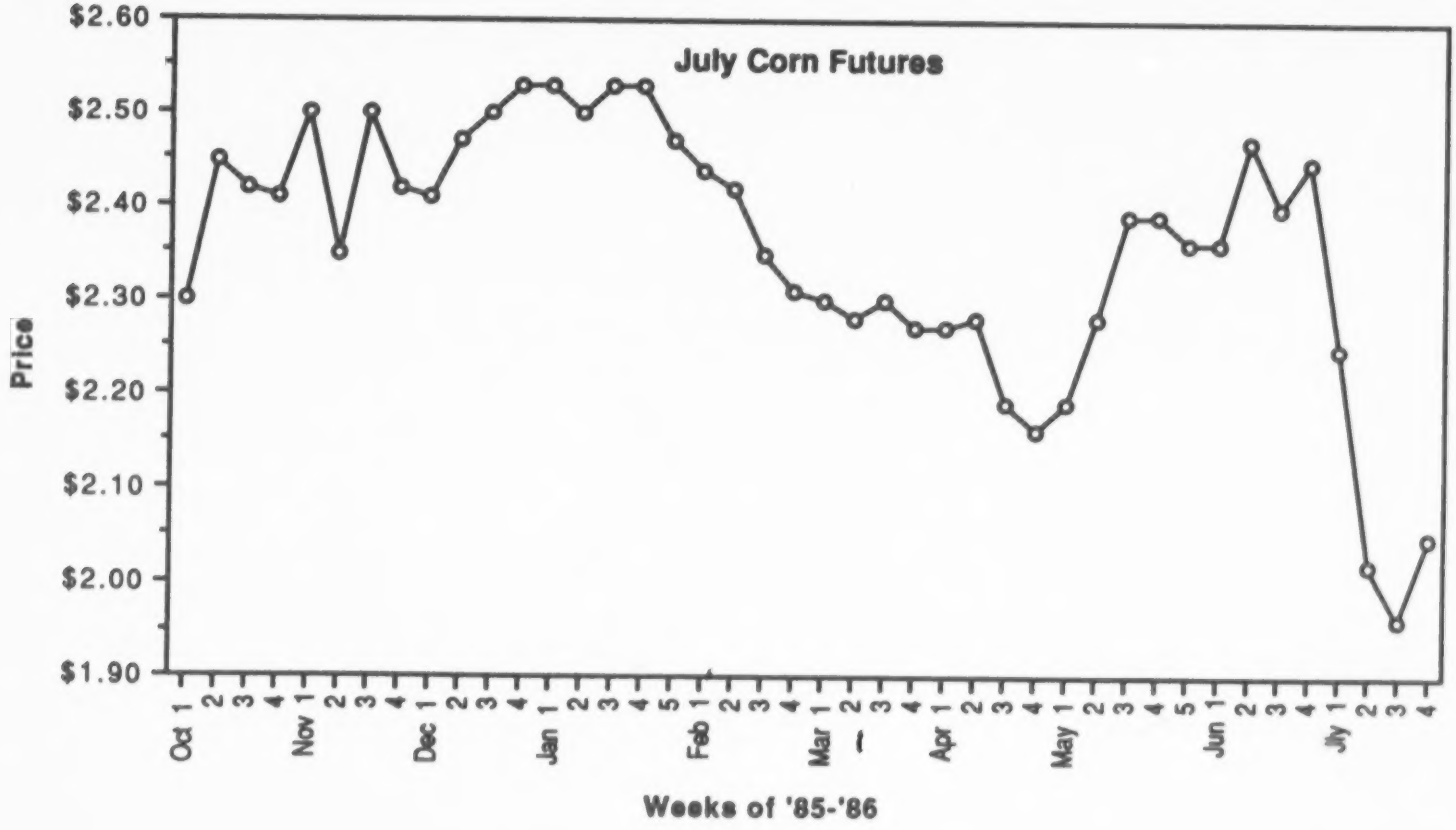




Futures Market

THE WORLD, NATIONAL, AND LOCAL SUPPLY AND DEMAND FOR GRAIN DETERMINE LOCAL GRAIN PRICES.

JULY CORN FUTURES FOR CHICAGO BOARD OF TRADE



EXAMPLE OF COMPUTER PRINTOUT OF FUTURES PRICE QUOTATIONS

CORN 04/20/88 15:56

	Open	High	Low	Last	Chg
May	r2050	2052	2040	S2042	- 12
Jul	r2126	2132	2114	S2120	- 12
Sep	r2184	2186	2170	S2174	- 12
Dec.	2262	2270	2250	S2256	- 12
Mar	2340	2342	2330	S2334	- 10
May	2386	2386	2376	S2380	- 12
Jul	2412	2416	2400	S2404	- 10

SOYBEANS 04/20/88 15:57

	Open	High	Low	Last	Chg
May	r6694	6722	6664	S6666	- 52
Jul	r6794	6820	6760	S6766	- 52
Aug	r6834	6854	6800	S6802	- 54
Sep	6854	6880	6820	S6822	- 56
Nov	r6960	6980	6910	S6916	- 64
Jan	r7040	7050	6990	S7000	- 60
Mar	r7100	7130	7080	S7080	- 60
May	0	0	N 0	S7130	- 54
Jul	7160	7170	7150	S7150	- 40

WHEAT - CBT 04/20/88 15:57

	Open	High	Low	Last	Chg
May	r3144	3164	3134	S3156	+ 14
Jul	r3232	3254	3222	S3244	+ 14
Sep	r3304	3324	3300	S3320	+ 16
Dec	r3410	3426	3402	S3424	+ 10
Mar	3460	3484	3460	S3480	+ 14
May	3490	3490	A3474	S3474	+ 10

Source: Ohio Farm Bureau ACRES Electronic Market News Service

FUTURES MARKET PARTICIPANTS

A. HEDGERS - Those who want to protect themselves from future unfavorable price changes.

1. FARMERS - seek protection against declining prices.

2. ELEVATORS - seek protection against lower prices between the time they purchase grain and the time they sell it.

3. PROCESSORS - seek protection against rising grain prices or lowering prices of grain in their storage.

4. EXPORTERS - seek protection against price increases of grain contracted for future delivery that has not been purchased.

B. PROFIT SEEKERS

1. SPECULATORS - sell when hedgers are buying and buy when hedgers are selling. Attempt to make profit on price fluctuations.

2. FLOOR TRADERS - buy and sell on small price changes. Usually have short-term holdings. Attempt to anticipate movements.

MARGIN REQUIREMENTS

Commodity/Exchange	HEDGE Net Initial	Net Maint	Spread Initial	Spread Maint
CHICAGO BOARD OF TRADE				
Wheat	750	750	150	150
Corn	400	400	100	100
Oats	250	250	100	100
Soybeans	2500	2500	100	100
(Old/New Crp Sprds)			1000	1000
MID-AMERICA EXCHANGE				
Corn - 1M bu	80	80	50	50
Wheat - 1M bu	120	120	50	50
Oats - 5M bu	250	250	100	100
Soybeans - 1M bu	300	300	100	100

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COMMISSION SHEET

Commodity	Contract Size	Value per Point	Dollars per Contract: Round Turn 1	Round Turn 2+	Round Turn DT	Spread 1	Spread 2+
CHICAGO BOARD OF TRADE							
Corn	5000 bushels	$50.00	50	45	35	60	55
Soybeans	5000 bushels	50.00	55	50	35	69	63
Wheat	5000 bushels	50.00	55	50	35	69	63
Oats	5000 bushels	50.00	45	40	30	56	50
MID-AMERICA EXCHANGE							
Wheat	1000 bushels	$10.00	25	23	20	45	40
Corn	1000 bushels	10.00	25	23	20	45	40
Soybeans	1000 bushels	10.00	25	23	20	45	40

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GRAIN PRICE RECORD

Corn Prices for Oct. (month)

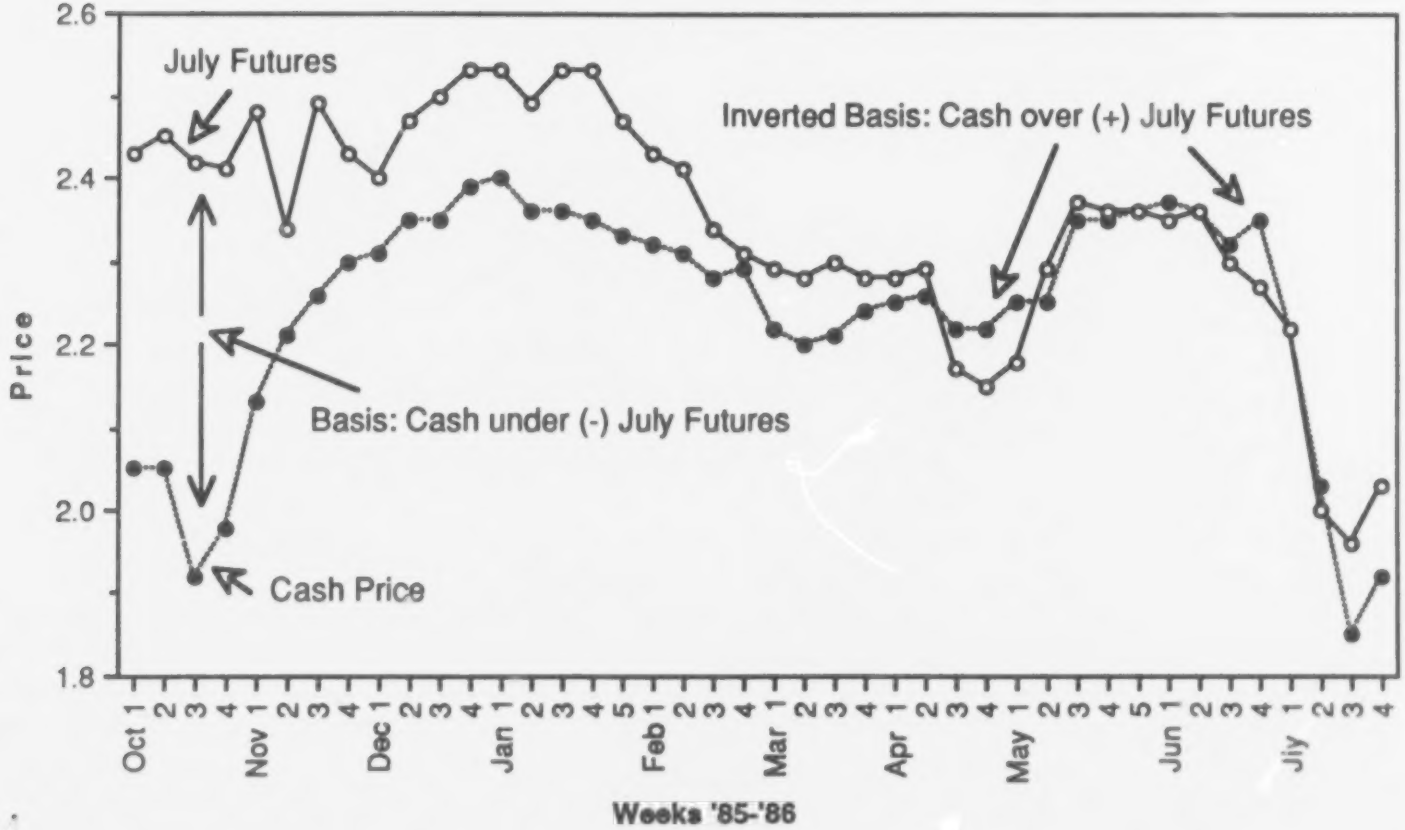
Dec. Cash Basis	Date	S.W. Ohio Cash Price	Futures Prices-Chicago Board of Trade			
			Dec.	March	May	July
-.07	First Week 19 83	3.45	3.52			3.55
-.20	First Week 19 84	2.60	2.80			2.90
-.20	First Week 19 85	2.04	2.24			2.44
-.34	First Week 19 86	1.40	1.74			1.90
-.30	First Week 19 87	1.55	1.85			2.05
-.05	Second Week 19 83	3.53	3.58			3.51
-.08	Second Week 19 84	2.70	2.78			2.92
-.15	Second Week 19 85	2.04	2.19			2.42
-.36	Second Week 19 86	1.29	1.65			1.85
-.38	Second Week 19 87	1.52	1.90			2.15
-.10	Third Week 19 83	3.27	3.37			3.38
-.17	Third Week 19 84	2.61	2.78			2.94
-.29	Third Week 19 85	1.92	2.21			2.41
-.40	Third Week 19 86	1.23	1.63			1.84
-.37	Third Week 19 87	1.58	1.95			2.25
-.06	Fourth Week 19 83	3.40	3.46			3.35
-.20	Fourth Week 19 84	2.58	2.78			2.93
-.27	Fourth Week 19 85	2.05	2.32			2.48
-.37	Fourth Week 19 86	1.35	1.72			1.89
-.40	Fourth Week 19 87	1.58	1.98			2.25

WEEKLY BASIS CHART

Commodity _____

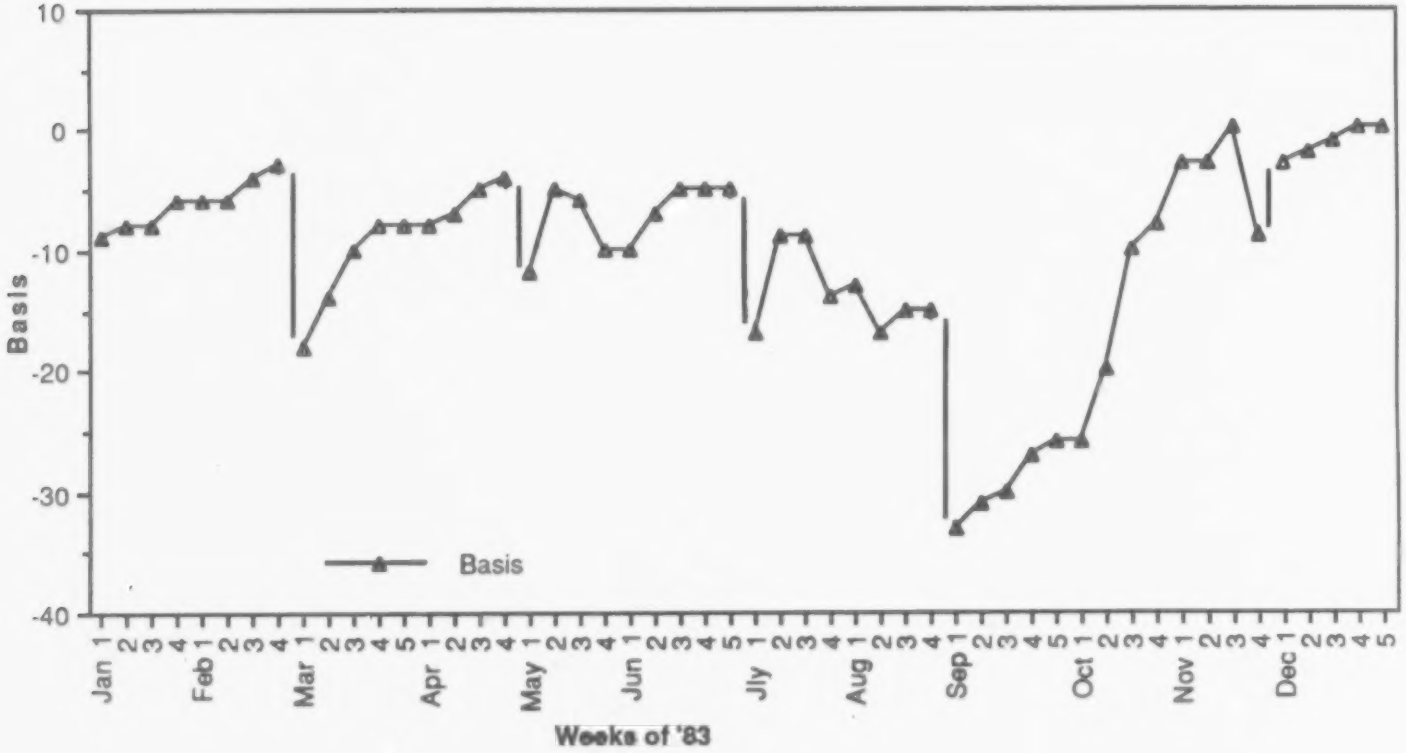
Month and Week	Closing Futures Price Futures Contract Month								Local Cash Prices Location			Basis Location			

RELATIONSHIP OF CASH CORN PRICES TO CBT JULY FUTURES PRICES

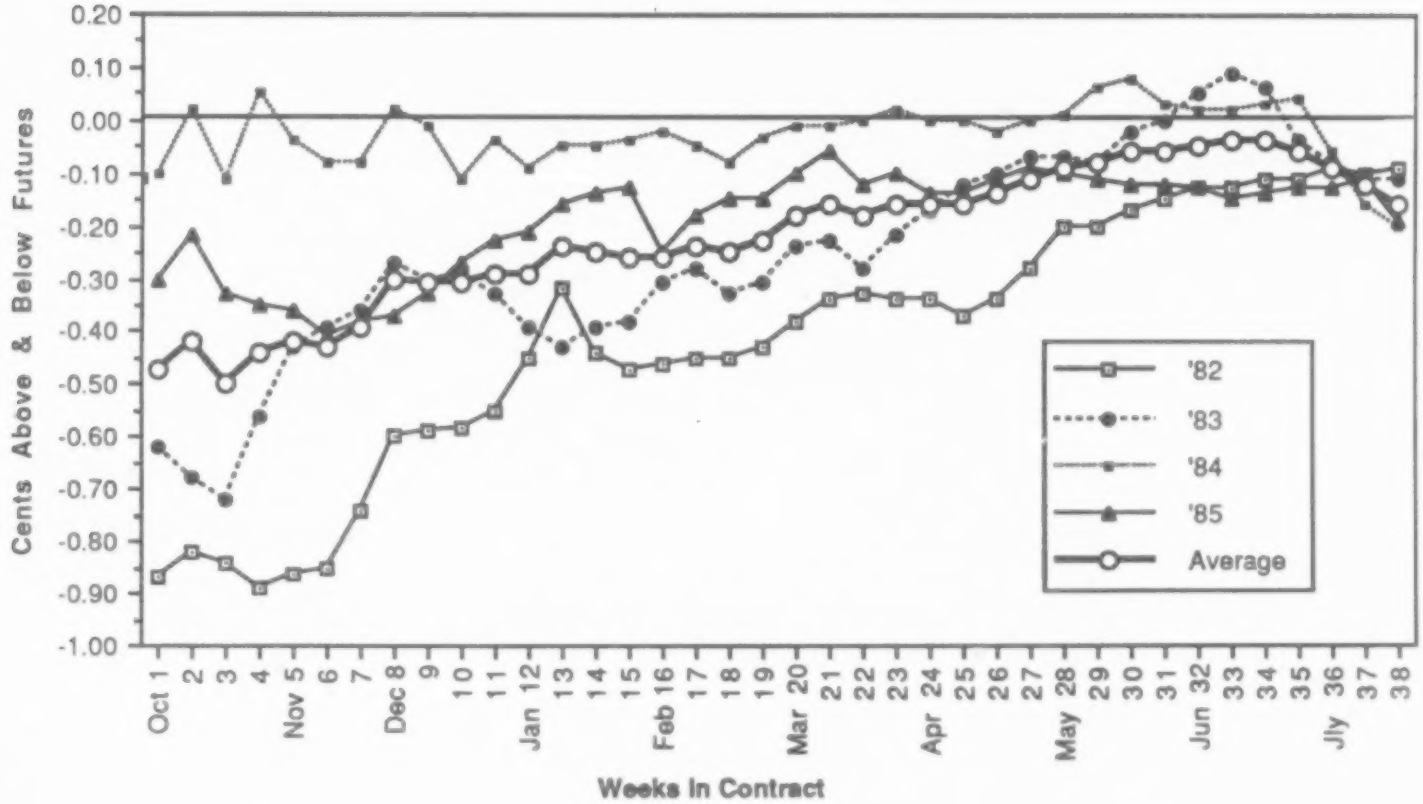


LOCAL BASIS FOR A LOCAL ELEVATOR

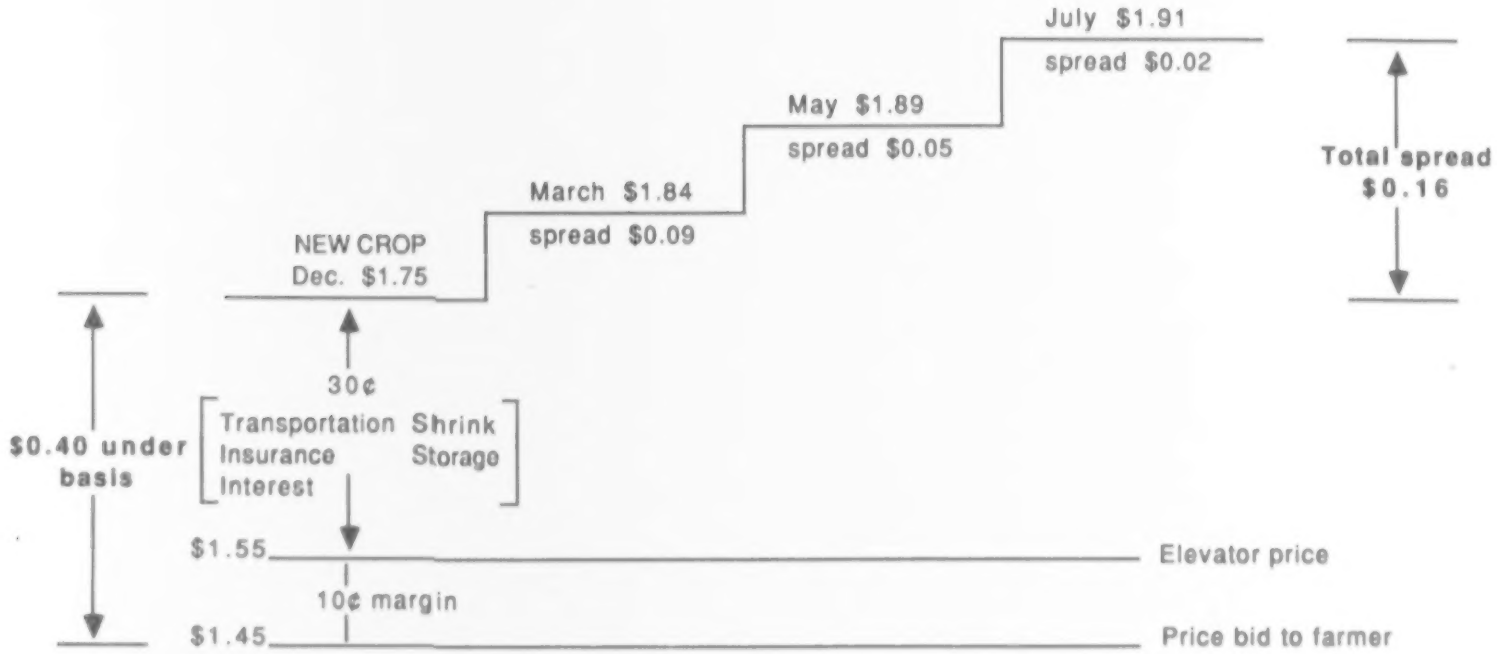
RUNNING BASIS FOR WHEAT



LOCAL HISTORIC BASIS FOR CORN IN A LOCAL ELEVATOR

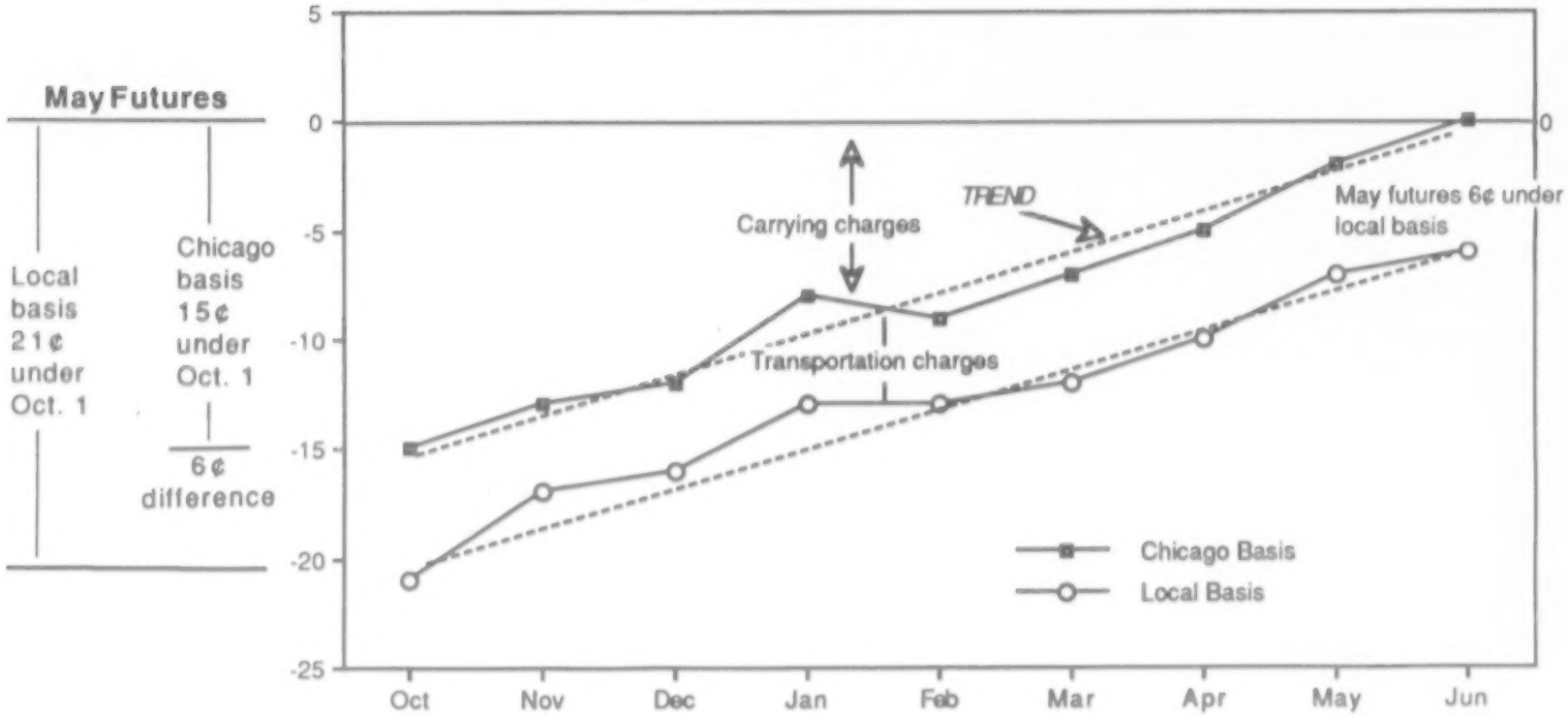


FUTURES PRICES ADVANCE ENOUGH FROM ONE MONTH TO THE NEXT TO COVER ADDITIONAL CARRYING CHARGES



Futures prices and local bid for corn on November 4, 1986. The increase in the futures price from December 1986 to July 1987 pays $0.16 extra carrying charges ($1.91 – $1.75 = $0.16.) (The advance of futures prices usually covers these charges.) If the spread declined from December through July, the signal would be that the market did not want grain to be stored.

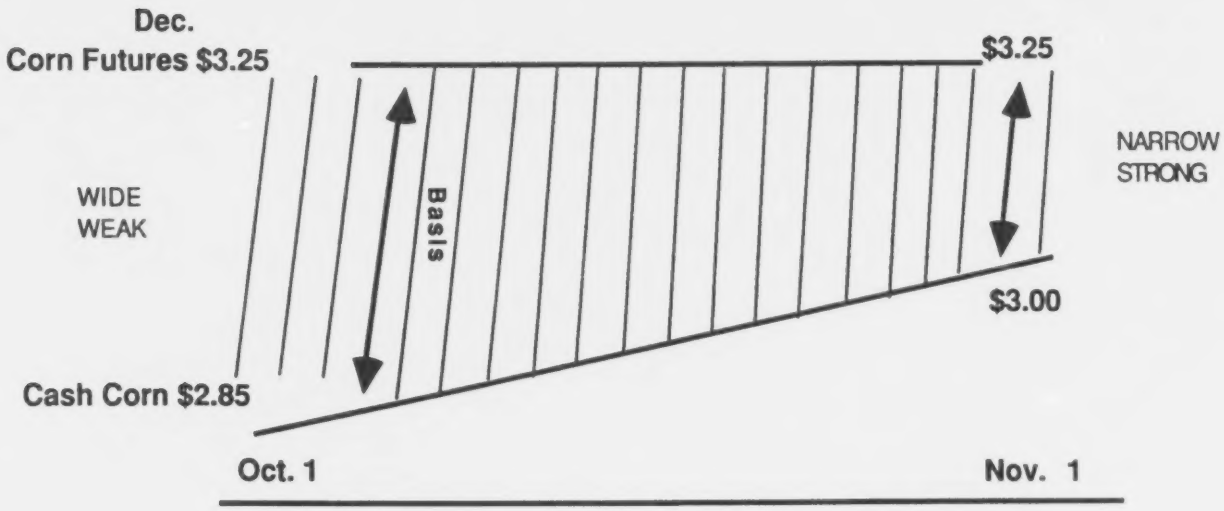
EFFECT OF TRANSPORTATION CHARGES ON BASIS



The basis tends to improve (narrow) as the futures delivery month approaches.

The difference in the basis at the local point and the distant delivery point reflects the transportation charges and the local supply and demand situation. (Due to the many variations in the latter, actual situations are seldom as perfect as this example.)

IMPROVING BASIS



Oct. 1 Basis = 40¢ under (–40¢)
Nov. 1 Basis = 25¢ under (–25¢)

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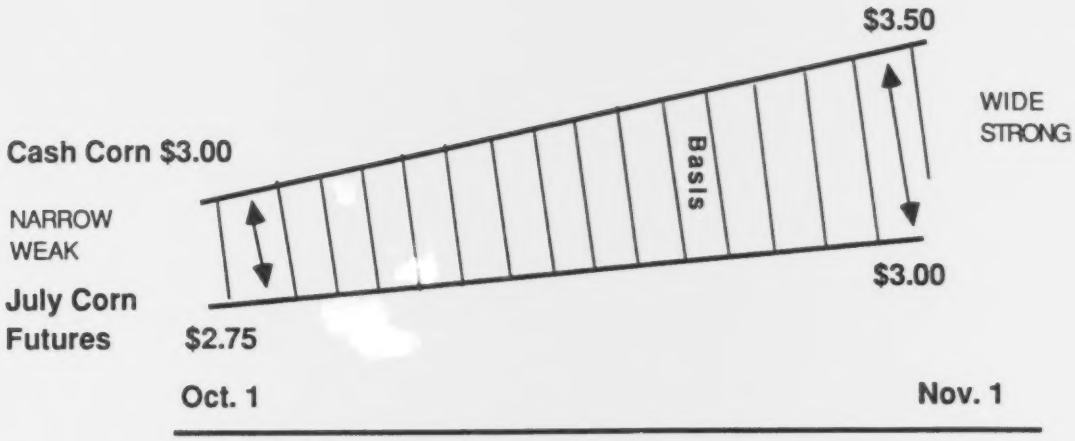
IMPROVING INVERTED BASIS



Oct. 1 Basis = 25¢ over (+25¢)
Nov. 1 Basis = 50¢ over (+50¢)

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WEAKENING BASIS

Oct. 1 Basis = 25¢ under (–25¢)
Nov. 1 Basis = 40¢ under (–40¢)

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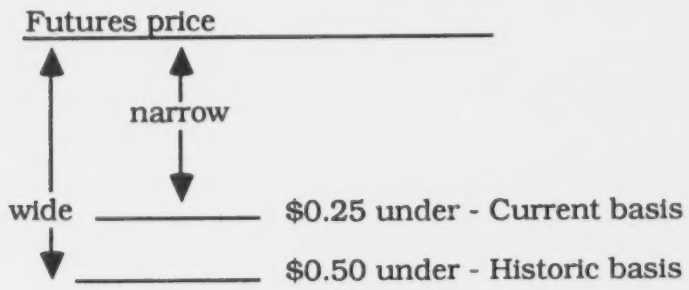
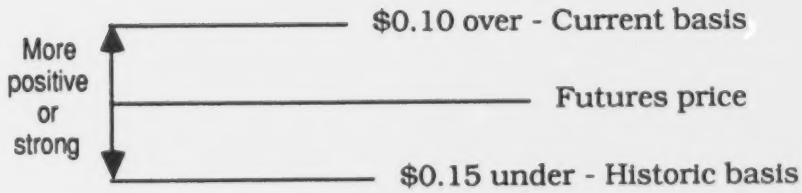
CURRENT BASIS IN RELATION TO HISTORIC BASIS

Current basis strong in relation to historic basis

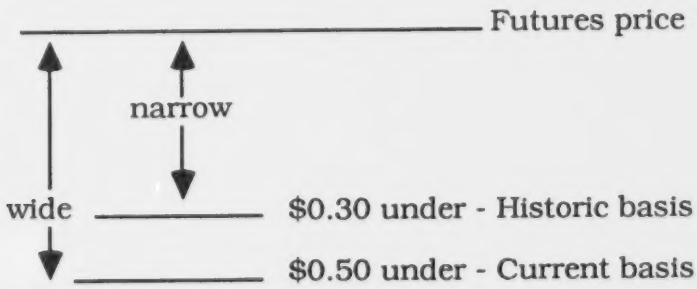
a.



b.

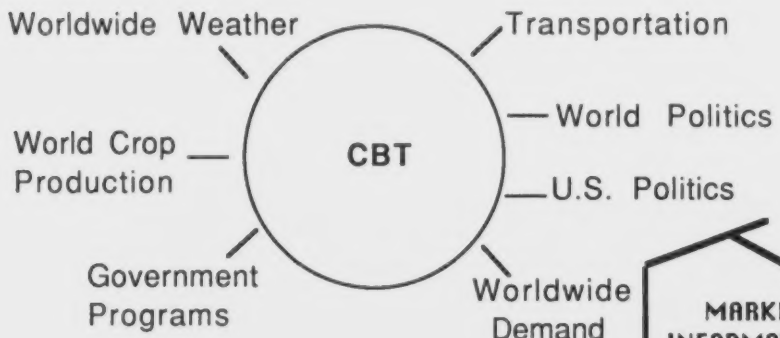


Current basis weak in relation to historic basis

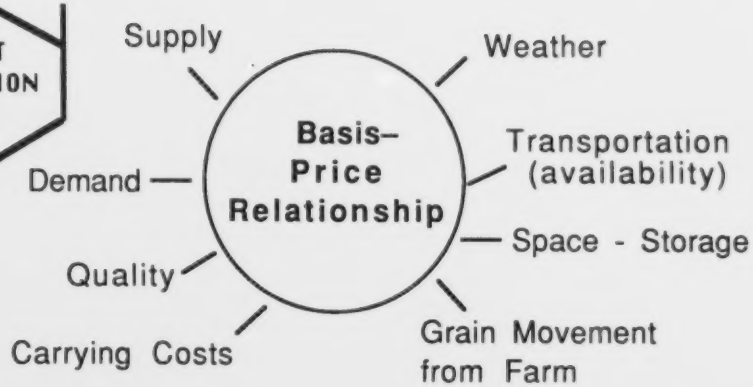


Chicago Board of Trade (CBT) Gives Worldwide Consideration to the Grain Market

CBT considers worldwide conditions when establishing prices



BASIS reflects the following:



Basis =

Local elevator cash price Dec. 17	$1.45
March futures price on Dec. 17	– 1.66
Basis on Dec. 17	– 0.21

or cash price 21¢ under futures price on Dec. 17

BASIS transfers meaning of CBT price to your local market.

CHAPTER 4

MARKETING ALTERNATIVES

REFERENCE: *Marketing Farm Grain Crops Student Manual*, Chapter 4, Marketing Alternatives, pages 101-133.

The grain producer has many options available for the marketing of his/her grain. One set of options deals with the *time* during the marketing season that the grain may be sold. Other options deal with the *methods* of transferring the grain from the seller to the buyer and the times during the marketing season that this may be accomplished. These options are referred to as ***marketing alternatives.*** The main purpose of this chapter is to make students aware of the many alternatives available to them. Another purpose is to enable students to apply the most appropriate marketing alternatives to their grain marketing situations.

1. Question: The grain marketing season can be divided into what periods?
(See *MFGC Student Workbook*, page 57, #1.)

Visual 4-1 Grain Selling Opportunities

Answer:
* Planning - from first intent to plant, to planting
* Growing - planting to harvest
* Storage - from harvest for next 12 months

2. Question: How many months can the grain marketing season extend over?
(See *MFGC Student Workbook*, page 57, #2.)

Answer: A total of 24 months: 12 months before to 12 months after harvest.

Feeding Grain

Marketing Farm Grain Crops Student Manual has only a brief paragraph dealing with the subject of marketing grain through livestock. If you wish to consider this option in more detail, the following information may be used as a guide.

A. Introduction

One of the major motives for a grain producer to consider feeding (marketing) the grain produced through livestock would be to increase his/her income over what it would have been had the grain been marketed as a grain crop. Feeding the crop to livestock will require many additional costs that would not be incurred if the crop were marketed as grain: buildings, equipment, the animals themselves, feed, medicine and labor, to name just a few. Knowing what these livestock costs will be is an important factor in comparing the costs of marketing the crop through livestock with selling it as grain. This is the key.

Equally important is the accuracy with which returns from the sale of the animals and/or animal products can be estimated. How well the student can arrive at an answer to the major question of the unit depends upon how closely he/she can determine the costs of producing the livestock that would be fed and estimating the returns received from the livestock.

B. Question:

What effect can marketing the grain through livestock have on the producer's income from the grain produced?

The following questions and procedures may be useful in guiding students in determining the solution to this major question.

1. How can farmers increase their income from grain by feeding it to livestock?

Answer: This is done by receiving more income from the sale of livestock and/or livestock products than the variable costs of raising livestock. Included in variable costs are the cost of grain plus any storage or interest costs of the grain until it is fed to livestock.

2. How is the cost determined for grain that is fed to livestock?

Answer: Livestock should be 'charged' for the grain at the cash price which could be received at harvest time plus the storage and interest costs.

3. How does one determine the amount of grain that will be fed to livestock?

Answer: Good records of past feeding experience are one of the best means of determining amount. Good, accurate Livestock Enterprise records are most valuable. If such records are not available, the records of other feeders, research projects and summarized studies of livestock feeding projects can be used.

4. What cautions need to be observed when using any feed records, especially those of other feeders where conditions are unknown?

Answer: We must realize that these other figures may be averages, or the enterprise may be conducted under conditions quite different from our own.

5. What source is available for a 'typical' example of the amount of grain required for livestock feeding?

Answer: The Ohio Livestock Enterprise Budgets produced by the Department of Agricultural Economics and Rural Sociology at The Ohio State University. Provide students with copies of the most recent edition of these books and/or make a transparency of:

Visual 4-2 Finishing Feeder Pigs Budget

Show the students that in the line "Feed" this budget uses 960 bushels of corn to feed out 100 feeder pigs from 50 to 220 pounds average.

6. What is the "return above variable costs" for feeding the 960 bushels of corn to pigs? (This assumes that facilities are available to feed out pigs.)

Answer:
$569 for hogs at $50 per cwt
$1,636 for hogs at $55 per cwt
$2,703 for hogs at $60 per cwt

7. How was the "return above variable costs" determined?

Answer:

Receipts	$11,737
Total variable costs	- 10,101
Return above variable costs	$1,636

8. What other costs need to be taken from this?

Answer:
Interest and storage costs for the period until animals are fed out.
The feeder project would last about 4 months.
Storage costs at $0.03 per bushel per month = $0.12
Interest charge on grain value at 8% is 0.08 x $2.30 = $0.1840 annual interest
$0.184 ÷ 12 months = $0.015 per month
For four months: $0.015 x 4 = $0.06
$0.12 (storage costs) + $0.06 (interest) = $0.18

0.18	storage and interest per bushel
x 960	bushels
$172.80	total added cost for storage and interest
or **$173.00**	(rounded off)

9. What would be the "return above variable costs" after costs for interest and storage are applied?

Answer:

Return above variable costs (as shown in budget)	$1,636
Charge for storage and interest on 960 bushels of corn	- 173
Return above variable costs for feeding 960 bushels of corn	$1,463

10. What are the added returns per bushel for marketing the corn through feeder pigs?

Answer:
1463 ÷ 960 = $1.52 per bushel

(Don't forget that the budget shows about 100 hours of labor is required to get these added returns per bushel.)

11. Why are the variable costs alone used to calculate the answer in cases where facilities and equipment are already available?

Answer: The other costs are fixed costs which are going to be there whether they are used or not. The variable costs are the only additional ones incurred because of the decision to market the corn through pigs.

12. Does the same procedure work with other types of livestock to determine what effect marketing grain through livestock has on the price received?

Answer: The other budgets in *Ohio Livestock Enterprise Budgets* can be used to help estimate typical costs of production. Use the following procedure:

a. Determine the amount of grain the animals will be fed.
b. Determine the storage and interest charges on the amount of grain fed for the feeding period.
c. Add the storage and interest costs of the grain fed to the variable costs.
d. Subtract the variable costs + storage and interest costs figure from the total receipts expected to get "return above variable costs."
e. Divide "return above variable costs" by the number of bushels fed to get "return above variable costs per bushel."

13. What other factors should a producer consider in determining the influence of marketing grain through livestock?

Answer:
a. Amount of labor available
b. Interest or abilities in producing livestock
c. Adequacy of the present facilities and equipment for use with livestock
d. Availability of or access to the extra money required for operating costs
e. The risk involved for the producer in case receipts from livestock go to a level where operating costs are greater than receipts
f. (Others)

C. *Summary*

To determine the influence that marketing through livestock may have on the returns from grain, the student needs to know the costs of production. Good enterprise records of the student's own experience in producing livestock are valuable for this purpose. In lieu of these records, typical production cost records as presented in *Ohio Livestock Enterprise Budgets* can be used. The student should be able to identify these costs, the amount of grain to be fed, and estimated receipts from the livestock, to arrive at "return above variable costs per bushel of grain fed." Marketing through livestock extends the speculation situation of the producer. If costs are higher and/or receipts from livestock are lower than estimated, the producer may receive less by marketing grain through livestock than by marketing grain directly. All these factors should be carefully considered.

3. Grain Marketing Alternatives

REFERENCE: *MFGC Student Manual*, Figure 4-3, page 102.

Visual 4-3 Marketing Alternatives

3a. Question: What are the three methods the producer can use to price his/her grain (excluding feeding grain to livestock and government programs)? State when the price is set and the grain delivered for each method.
(See *MFGC Student Workbook*, page 57, #3a.)

Answer:
1. Price at delivery - cash sale of grain at harvest or from storage
2. Forward pricing - price established and delivery made at later date
3. Deferred pricing - grain delivered but price set at later date

3b. Question: What are the marketing alternatives for each of these three price-setting methods?
(See *MFGC Student Workbook*, pages 57-58, #3b.)

Answer:
1. Price at delivery
   a. Harvest and deliver for sale
   b. Store and deliver for sale
2. Forward pricing
   a. Forward contract
   b. Futures contract hedging
   c. Options contract

(continued)

3. Deferred pricing
   a. Delayed price contract
   b. Basis contract

Other marketing alternatives that are available to the grain producer are for the most part more complicated. The student can move into these areas after mastering the less complicated marketing alternatives.

4. Use of Contracts in Transferring Title of Grain

REFERENCE: *MFGC Student Manual*, page 102, Use of Contracts in Transferring Title of Grain.

Visual 4-4 The Five Parts of a Grain Contract
Visual 4-5 Sample Grain Contract
Visual 4-6 Grain Dealer Policies and Practices to Check before Signing a Contract

4a. Question: What are the five parts of a grain contract?
(See *MFGC Student Workbook*, page 58, #4a.)

Refer to *Visual 4-4* and then have the students identify these five parts on the sample grain contract of *Visual 4-5* (or *MFGC Student Manual*, Figure 4-4, page 104). Obtain other copies of grain contracts and have students identify each part.
Review *Visual 2-7*, Scale Ticket, and identify on it the five parts of a contract.

4b. Question: What grain dealer policies and procedures should be checked before signing a contract?
(See *MFGC Student Workbook*, page 58, #4b.)

Refer to *Visual 4-6*, Grain Dealer Policies and Procedures to Check before Signing a Contract. Also refer to *MFGC Student Manual*, page 103. Discuss these points and have students record their answers.

4c. Question: Two elevators in your area quote the same price for your grain, but the net price you would receive is different. How can this happen?
(See *MFGC Student Workbook*, page 59, #4c.)

Briefly review the grading and discount schedules discussed in Chapter 2.

5. Price at Delivery
(at harvest or from storage)

REFERENCE: *MFGC Student Manual*, pages 103-107, Price at Delivery (etc.).

5a. Question: How can you determine whether or not a bid for cash grain is a good bid?
(See *MFGC Student Workbook*, page 59, #5a.)

Answer: On the day the bid is received, compare the historic (normal or usual) basis with the current basis.

5b. Question: In the following situation, would you consider the cash bid for soybeans a good bid? (See *MFGC Student Workbook*, page 59, #5b.)

Situation:

Nov. 5 Cash bid - soybeans	$4.92
Nov. 5 Jan. soybean futures	$5.54
Nov. 5 Historic basis for Jan. soybeans	- $0.39

Cash bid	$4.92
Jan. futures	- $5.54
Local basis	- $0.62
Historic basis	- $0.39
Difference	$0.23

Jan. futures	$5.54
Historic basis	- 0.39
Expected price	$5.15

Answer: The expected price would have been $5.15 which is $0.23 over the bid price.

5c. Question: What are three reasons why the elevator bid might be below the expected price? List them.
(See *MFGC Student Workbook*, page 60, #5c.)

(Refer to *MFGC Student Manual*, page 106.)
Answer:
1. Unusually large crop
2. Bids for corn from the usual elevator customers lacking.
3. Low competition for grain.

5d. Question: What are the advantages and disadvantages of pricing and delivering grain at harvest?
(See *MFGC Student Workbook*, page 60, #5d.)

REFERENCE: *MFGC Student Manual*, page 106, Price and Deliver at Harvest.

Visual 4-7 Price and Deliver at Harvest

5e. Question: What are the advantages and disadvantages of storing grain on the farm and then pricing and delivering later?
(See *MFGC Student Workbook*, pages 60-61, #5e.)

REFERENCE: *MFGC Student Manual*, page 106, Store, Price and Deliver Later.

Visual 4-8 Store Grain on Farm, then Price and Deliver Later

5f. Question: What are the advantages and disadvantages of storing grain in a commercial elevator, receiving a warehouse receipt, and pricing and selling later?
(See *MFGC Student Workbook*, page 61, #5f.)

REFERENCE: *MFGC Student Manual*, page 107, Store at Commercial Elevator, (etc.).

Visual 4-9 Store at Commercial Elevator, Receive Warehouse Receipt, and Price and Sell Later

6. Forward Pricing
(price in advance, deliver later)

REFERENCE: *MFGC Student Manual*, pages 107-124, Forward Pricing.

6a. Question: What are the forward pricing grain marketing alternatives discussed in the *Student Manual?*
(See *MFGC Student Workbook*, page 61, #6a.)

Answer:
Cash forward contract
Futures market contract
Commodity option contract

6b. Question: During what periods of the marketing season can grain be forward priced?
(See *MFGC Student Workbook*, page 62, #6b.)

Review *Visual 4-1* Grain Selling Opportunities.

Answer: A forward price can be established at any time: during the planning, growing or storage period.

7. Forward Contracting Grain

REFERENCE: *MFGC Student Manual*, pages 107-109, Steps in Forward Contracting Grain.

7a. Question: What steps are involved in forward contracting grain?
(See *MFGC Student Workbook*, page 62, #7a.)

Visual 4-10 Steps in Forward Contracting Grain

Answer:
1. Contact one or more grain buyers.
2. Determine conditions of grain dealer's forward pricing contract.
3. Determine the buyer's bid for your grain.
4. Study grain marketing news and evaluate the buyer's bid.

As an interest technique, obtain sample copies of grain sales contracts from local grain buyers.

Visual 4-11 Sample Grain Sales Contract Used when Forward-Contracting Grain
(Also *MFGC Student Manual*, Figure 4-7, page 108)

7b. Question: What are the conditions of sale that are specified in the grain marketing contracts you have studied?
(See *MFGC Student Workbook*, page 62, #7b.)

Answer:
Net bushels of grain to be delivered
The commodity or grain to be delivered
Price per bushel
Delivery period
Place of delivery
Grade

(continued)

How grain grading lower than contract conditions will be handled
Discount schedules to be used
Conditions under which buyer will accept grain
How default on part of seller will be handled

7c. Exercise: *Situation*: On June 15 you obtain a bid of $4.75 for soybeans to be delivered to your local elevator in March. The March futures price for soybeans is $5.05 on June 15. Your records show the five-year average historic basis to be –0.45 for March soybeans on June 15. Would you consider the bid of $4.75 a good bid or a bad bid?
(See *MFGC Student Workbook*, page 63, #7c.)

Basis used by buyer in setting bid

Cash bid price	$4.75
March futures price	- 5.05
Historic basis used by buyer	- $0.30

Expected price using producer's historic basis

March futures price	$5.05
Producer's historic basis	- 0.45
Producer's expected price	$4.60

Buyer's bid	$4.75
Producer's expected price	- 4.60
Difference	$0.15

Answer: In this situation it appears that the buyer has made a good bid of $4.75 which is $0.15 over the producer's expected price.

7d. Question: What are the advantages and disadvantages of forward contracting grain?
(See *MFGC Student Workbook*, pages 63-64, #7d.)

REFERENCE: *MFGC Student Manual*, page 109, Advantages and Disadvantages of Forward Contracting.

Visual 4-12 Forward Contracting Grain

8. Futures Market Contract - Hedging

REFERENCE: *MFGC Student Manual*, pages 109-117, Futures Market Contract - Hedging.

Visual 4-13 Movements of Cash and May Futures Prices

8a. Question: How do supply and demand factors affect the up-and-down movement of cash and futures prices?
(See *MFGC Student Workbook*, page 64, #8a.)

Answer: Since the same supply and demand factors affect both the cash and futures market at the same time, they tend to move up and down at the same time.

8b. Question: How does the tendency of cash and futures markets to move up and down together make hedging possible?
(See *MFGC Student Workbook*, page 64, #8b.)

Answer: The gains and losses in the futures market are nearly opposite and tend to offset similar gains or losses in the cash market.

8c. Question: What does a producer do when hedging?
(See *MFGC Student Workbook*, page 64, #8c.)

Answer: He or she takes opposite positions in each of the markets (cash and futures).

8d. Question: What does it mean to be ***long in the cash market?***
(See *MFGC Student Workbook*, page 64, #8d.)

Answer: Either to have grain growing in the field or to have grain in storage.

8e. Question: What does it mean to be ***short in the futures market?***
(See *MFGC Student Workbook*, page 65, #8e.)

Answer: Selling a futures contract for making delivery during the futures contract month.

8f. Question: If you are long in the cash grain market and have an opposite or short position in the futures market, how will the following affect your chances for making a profit? Why?
(See *MFGC Student Workbook*, page 65, #8f.)

* an increase in futures prices

* a decrease in futures prices

8g. Question: What are the reasons a grain farmer would consider hedging grain?
(See *MFGC Student Workbook*, page 65, #8g.)

Visual 4-14 Reasons for Hedging

Answer:
* Establish the price of a crop before harvest.
* Establish the price of grain in storage for later delivery.

9. Procedures for Hedging

REFERENCE: *MFGC Student Manual*, pages 110-111, Procedures for Hedging.

Visual 4-15 Determining Advisability of Hedging

Review *MFGC Student Manual*, Mechanics of Futures Trading.

9a. Question: What steps should you take in determining whether or not to hedge?
(See *MFGC Student Workbook*, pages 65-66, #9a.)

Use supervised study and *Visual 4-15*. Then have students record the steps in their workbook.

9b. Exercise: Localize the futures price for the following situation.
(See *MFGC Student Workbook*, page 66, #9b.)

Situation: You planted 90 acres of corn and expect a yield of 140 bushels per acre for a total production of 12,600 bushels. You localize the futures price as a step in determining whether or not to hedge your growing crop.

Sell two 5,000-bu December futures contracts.
June 2 Local cash corn price $1.73
June 2 December corn futures $2.11
Commission fee: $25.00 per 5,000-bu contract
Margin requirement: 15% of contract value
Interest rate 10%

Solution:
Determine basis:

June 2 Local cash price	$1.73
June 2 Dec. corn futures	- 2.11
Basis	- $0.38

Commission fee 2 x $25.00 = $50.00
Margin requirement
10,000 bu. x $2.11 = $21,100.00 x 0.15 = $3,165.00
Interest $3,165.00 @ 8% for 6 months
$3,165.00 x .10 = $316.50 ÷ 2 = $158.25
Total cost of two contracts $208.25
Total cost per bu.
$208.25 ÷ 10,000 bu. = $0.020 or $0.02

Localize futures price:

Futures price	$2.11
Basis	- 0.38
Cash price	$1.73
Commission and interest	- 0.02
Localized price	$1.71

10. Establishing the Price of a Crop before Harvest

10a. Question: You establish a hedge for your growing crop, then your crop is sold and the hedge is lifted. What is the relation of the price you receive to the market price when prices decline? when prices increase?
(See *MFGC Student Workbook*, page 67, #10a.)

Answer:
When prices decline, you will receive the higher-than-market price you established for your grain.
When prices increase, you will sell your grain at a favorable price, but one that is lower than the market price.

10b. Question: What are the steps involved in hedging before harvest?
(See *MFGC Student Workbook*, page 67, #10b.)

REFERENCE: *MFGC Student Manual*, page 111, Steps in Hedging before Harvest.

Visual 4-16 Steps in Hedging before Harvest

10c. Exercise: In the following four hedging situations, compare the net price received for corn as a result of hedging, with the cash price of corn on the day sold.
(See *MFGC Student Workbook*, pages 67-71, #10c.)

In each situation, two 5,000-bu. December corn futures contracts will be sold on May 28. Cash corn will be sold and the hedge lifted on Dec. 3, when two futures contracts are bought. The interest on the margin deposit and the commission fee is $0.03 per bushel for the time the hedge is in effect.

On May 28, the cash price of corn is $1.78 and the December futures price is $2.15. Determine the expected price for the corn by localizing the futures price. (This will be the same for all four situations.)

May 28	Cash price	$1.78
May 28	Dec. futures	- 2.15
	Basis	- $0.37

May 28	Futures price	$2.15
	Basis	- 0.37
	Gross price	$1.78
	Commission and interest	- 0.03
	Net expected price	$1.75

Situation 1. The cash price and the futures price decline while the basis remains the same. (See *MFGC Student Workbook*, page 68.)

May 28	Cash price corn	$1.78
May 28	Dec. corn futures	2.15
Dec. 3	Cash price corn	1.52
Dec. 3	Dec. corn futures	1.89

Solution:

Cash		**Futures**		**Basis**
May 28				
Growing 10,000+ bu. corn		Sell two contracts Dec. corn		
Cash price	$1.78	Dec. futures	$2.15	- $0.37
Dec. 3				
Harvest and sell 10,000 bu. corn. Cash price	$1.52	Buy two contracts Dec. futures	$1.89	- $0.37
Loss	$0.26	Gain	$0.26	0.00

Cash price	$1.52
Gain in futures	+ 0.26
Gross price	$1.78
Commission and interest	- $0.03
Net price	$1.75

$1.75 net price - $1.52 cash price = $0.23

This is a perfect hedge since the Dec. 3 expected price and the net price received are the same. Hedging situations will often approach the perfect hedge but seldom work out to be perfect. In this situation, hedging resulted in receiving $0.23 above the cash price.

Situation 2. The cash price and the futures price decline and the basis strengthens (narrows). (See *MFGC Student Workbook*, page 69.)

May 28	Cash price corn	$1.78
May 28	Dec. corn futures	2.15
Dec. 3	Cash price corn	1.58
Dec. 3	Dec. corn futures	1.86

Solution:

Cash		**Futures**		**Basis**
May 28				
Growing 10,000 bu. corn		Sell two contracts Dec. corn		
Cash price	$1.78	Dec. futures	$2.15	- $0.37
Dec. 3				
Harvest and sell 10,000 bu. corn. Cash price	$1.58	Buy two contracts Dec. futures	$1.86	- $0.28
Loss	$0.20	Gain	$0.29	Gain $0.09

***Situation 2** (continued)*

Cash price	$1.58
Gain in futures	+ 0.29
Gross price	$1.87
Commission and interest	- $0.03
Net price	$1.84

$1.84 - $1.75 = $0.09

As a result of hedging you gained an extra $0.09 per bushel over the expected price of $1.75. It cost less to buy the futures contracts on Dec. 3 than it did on May 28. Your net price was $0.26 over the cash price on Dec. 3.

$1.84 - $1.58 = $0.26

Situation 3: The cash price and the futures price decline and the basis weakens (widens). (See *MFGC Student Workbook*, page 70.)

May 28	Cash price corn	$1.78
May 28	Dec. corn futures	2.15
Dec. 3	Cash price corn	1.62
Dec. 3	Dec. corn futures	2.08

Solution:

Cash		**Futures**		**Basis**
May 28				
Growing 10,000 bu. corn		Sell two contracts Dec. corn		
Cash price	$1.78	Dec. futures	$2.15	- $0.37
Dec. 3				
Harvest and sell 10,000 bu. corn. Cash price	$1.62	Buy two contracts Dec. futures	$2.08	- $0.46
Loss	$0.16	Gain	$0.07	Loss $0.09

Cash price	$1.62
Gain in futures	+ 0.07
Gross price	$1.69
Commission and interest	- $0.03
Net price	$1.66

$1.75 - $1.66 = $0.09

In this hedge, the net price was $0.09 below the expected price. The net price was still $0.04 above the cash price in this situation.

$1.66 - $1.62 = $0.04

Even though both the cash and futures prices increased, the weakening basis caused the net price to be lower than the expected price.

Situation 4: The cash price and the futures price increase and the basis weakens (widens). (See *MFGC Student Workbook*, page 71.)

May 28	Cash corn price	$1.78
May 28	Dec. corn futures	2.15
Dec. 3	Cash corn price	1.98
Dec. 3	Dec. corn futures	2.50

Solution:

Cash		**Futures**		**Basis**
May 28				
Growing 10,000 bu. corn		Sell two contracts Dec. corn		
Cash price	$1.78	Dec. futures	$2.15	- $0.37
Dec. 3				
Harvest and sell 10,000 bu. corn. Cash price	$1.98	Buy two contracts Dec. futures	$2.50	- $0.52
Gain	$0.20	Loss	$0.35	Loss $0.15

(continued)

***Situation 4** (continued)*

Cash price	$1.98
Loss in futures	-0.35
Gross price	$1.63
Commission and interest	- $0.03
Net price	$1.60

Cash price $1.98 - $1.60 = $0.38

This hedge caused the grain to be sold $0.38 below the cash price and $0.15 below the expected price. The weakening basis caused more to be paid in buying the futures contracts in December than they cost in May.

11. Establishing the Price of Grain in Storage for Later Delivery

REFERENCE: *MFGC Student Manual*, pages 114-115, Establishing the Price of Grain in Storage for Later Delivery.

Visual 4-17 Basis Improvement and the Cost of Storage
Visual 4-18 Steps in Hedging Stored Grain

11a. Question: In addition to the usual costs of hedging (commission fee and interest on margin), what additional cost must be considered when hedging stored grain?
(See *MFGC Student Workbook*, page 72, #11a.)

Answer: The cost of storing the grain until it is sold must be recovered if storing grain is to be successful. The net price received for grain sold from storage must be enough over the cash price to cover the cost of storage.

11b. Question: For the cost of storage to be recovered in hedging operations, what must happen to the basis?
(See *MFGC Student Workbook*, page 72, #11b.)

Answer: (See *Visual 4-17* the **1982** July corn basis.) The basis must move from a weak position at harvest to a strong position when the grain is sold. The strengthening of the basis must be enough to cover the cost of storage if the hedging is to be profitable.

11c. Question: If the basis remains the same or weakens during the storage period, would storage be profitable?
(See *MFGC Student Workbook*, page 72, #11c.)

Answer: (See *Visual 4-17* the **1984** July corn basis.) The cost of storage would not be recovered and hedging would not be profitable.

11d. Question: What are the steps involved in hedging stored grain?
(See *MFGC Student Workbook*, page 72, #11d.)

(See *Visual 4-18*.)

11e. Exercise: In the following two situations, compare the net price expected for soybeans as a result of hedging, with the cash price of soybeans on the day the crop is sold.
(See *MFGC Student Workbook*, pages 73-74, #11e.)

In each of the two situations, two 5,000-bu. soybean futures contracts will be sold on November 1, and the hedge will be lifted on March 3 when two futures contracts are bought. The interest on margin and commission fee is $0.02 per bushel for the time the hedge is in effect.

On November 1 the cash price of soybeans is $5.72 and the March soybean futures price is $6.13.

Determine the expected net price for the soybeans.

Nov. 1 Cash price	$5.72
Nov. 1 Futures price	- $6.13
Basis	- $0.41

Nov. 1 Futures price	$5.72
Basis	-0.41
Gross price	$5.76
Interest and commission	-0.02
Net price	$5.74

Situation 1. The cash and futures soybean prices decline while the basis improves.
(See *MFGC Student Workbook*, page 73, Situation 1.)

Nov. 1	Cash price soybeans	$5.72
Nov. 1	March soybean futures	$6.13
March 3	Cash price soybeans	$5.36
March 3	March soybean futures	$5.43

Solution:

Cash	**Futures**	**Basis**
Nov. 1		
Store 12,000 bu. soybeans	Sell two contracts March soybeans	
Cash price $5.72	March futures $6.13	- $0.37
March 3		
Sell 10,000 bu.	Buy two March futures contracts	
Cash price $5.36	March futures $5.43	- $0.07
Loss $0.36	Gain $0.70	Gain $0.30

Cash price	$5.36
Gain in futures	+ 0.70
Gross price	$6.06
Interest and commission	- $0.02
Net price	$6.04

Net price $6.04 - $5.74 = $0.30
Conclusion: The $6.04 net price is $0.30 over the expected price of $5.74.

$6.04 - $5.36 = $0.68
Hedging would gain $0.68 over the cash price of $5.36 on March 3.

In this situation the strengthening of the basis resulted in a payment of $0.68 per bushel for storage, which should more than cover the storage costs.

Situation 2. The cash price and the futures price increase while the basis weakens.
(See *MFGC Student Workbook*, page 74, Situation 2.)

Nov. 1	Cash price soybeans	$5.72
Nov. 1	March soybean futures	$6.13
March 3	Cash price soybeans	$5.97
March 3	March soybean futures	$6.47

Solution:

Cash	**Futures**	**Basis**
Nov. 1		
Store 12,000 bu. soybeans	Sell two contracts March soybeans	
Cash price $5.72	March futures $6.13	- 0.37
March 3		
Sell 10,000 bu.	Buy two March futures contracts	
Cash price $5.97	March futures $6.47	- 0.50
Gain $0.25	Loss $0.34	Loss $0.13

Cash price	$5.97
Loss in futures	-0.34
Gross price	$5.63
Interest and commission	-0.02
Net price	$5.61

Conclusion: Due to the weakening of the basis, the net price received as a result of hedging was below both the cash price and the expected price on March 3. Hedging would not only have failed to pay for storage but would have resulted in taking a net price below the cash price on March 3.

12. Advantages and Disadvantages of Hedging

REFERENCE: *MFGC Student Manual*, pages 116-117, Advantages and Disadvantages of Hedging.

Visual 4-19 Advantages of Hedging
Visual 4-20 Disadvantages of Hedging

12a. Question: What are the advantages of hedging grain?
(See *MFGC Student Workbook*, page 75, #12a.)

12b. Question: What are the disadvantages of hedging grain?
(See *MFGC Student Workbook*, pages 75-76, #12b.)

13. Commodity Option Contract

REFERENCE: *MFGC Student Manual*, pages 117-120, Commodity Option Contract.

Visual 4-21 A Commodity Option Contract

13a. Question: What is a commodity option contract? Define.
(See *MFGC Student Workbook*, page 76, #13a.)

After supervised study of the above reference and *Visual 4-21*, discuss option contracts with the students and have them write their definition in the workbook.

13b. Question: What are the characteristics of buyers of options? sellers of options? Describe each.
(See *MFGC Student Workbook*, page 76, #13b.)

REFERENCE: *MFGC Student Manual*, page 117, Buyers and Sellers of Options.

13c. Question: What is the underlying commodity for an option contract?
(See *MFGC Student Workbook*, page 76, #13c.)

REFERENCE: *MFGC Student Manual*, page 117, Underlying Commodity.

Answer: The futures contract rather than the actual grain.

13d. Question: What are the two types of commodity options? Describe the kind of farmer that would use each.
(See *MFGC Student Workbook*, page 77, #13d.)

REFERENCE: *MFGC Student Manual*, pages 117-118, Two Types of Commodity Options.

Answer:
- ✱ Call option (+ *description*)
- ✱ Put option (+ *description*)

13e. Question: Define the term *premium*. Who pays the premium? How is the premium determined?
(See *MFGC Student Workbook*, page 77, #13e.)

REFERENCE: *MFGC Student Manual*, page 118, Premiums.

Obtain copies of *The Wall Street Journal* and computer printouts of Futures Options quotations for students to study. Also see *MFGC Student Manual*, Figures 4-11 and 4-12, page 119.

13f. Question: Using Figure 4-12 again, (refer to *MFGC Student Manual*, page 119), look at the computer printout, "Option quotation for March 10, 1987 grain." What premium would a soybean farmer pay for a July put option with a $5.25 strike price for 5,000 bushels of soybeans purchased at the closed price?
(See *MFGC Student Workbook*, page 77, #13f.)

The closed price is **402** = 40 2/8 = 40.25¢ = $0.4025
5,000 bu. x $0.4025 = $2,012.50

Answer: The farmer would pay a premium of $2,012.50.

13g. Question: Describe the break-even point. How is it determined?
(See *MFGC Student Workbook*, page 77, #13g.)

REFERENCE: *MFGC Student Manual*, page 118, Break-Even Point.

13h. Question: What would be the break-even point for the example given in question 13f? (See *MFGC Student Workbook*, page 77, #13h.)

Answer: $5.25 strike price – $0.4025 premium = $4.8475 break-even price for July futures.

13i. Question: What are the three ways to terminate an option contract?
(See *MFGC Student Workbook*, page 78, #13i.)

REFERENCE: *MFGC Student Manual*, pages 119-120, Terminating an Option.

13j. Question: Describe the position you are in when you exercise an option. What additional expenses would you have?
(See *MFGC Student Workbook*, page 78, #13j.)

REFERENCE: *MFGC Student Manual*, page 119, Exercise.

Answer:
* Post margin money.
* Pay commission fees.

13k. Question: Describe the position you are in and the costs involved when you let your option expire. Under what conditions would you consider letting your option expire?
(See *MFGC Student Workbook*, page 78, #13k.)

REFERENCE: *MFGC Student Manual*, page 120, Expiration.

Answer: Costs involved: premium and commission.

13l. Question: What do you do when you liquidate or close out your option?
(See *MFGC Student Workbook*, page 78, #13l.)

REFERENCE: *MFGC Student Manual*, page 120, Liquidation or Closing Out Option.

Answer: Sell your option through your broker on the grain exchange.

14. Value of an Option

REFERENCE: *MFGC Student Manual*, pages 120-121, Value of an Option.

Visual 4-22 Value of a Soybean Put Option

14a. Question: What do the following three terms mean when applied to the value of an option?
(See *MFGC Student Workbook*, pages 78-79, #14a.)

1) *in the money*
2) *at the money*
3) *out of the money*

14b. Question: Would the following August soybean option with a strike price of $5.30 be in the money, out of the money, or at the money when the futures price is:
(See *MFGC Student Workbook*, page 79, #14b.)

Answer:

$5.45	*out of the money*	Futures price above strike price.
$5.20	*in the money*	Futures price below strike price. ($5.30 strike price – $5.20 futures price = $0.10 intrinsic value)
$5.30	*at the money*	Strike price and futures price the same.

14c. Question: How is it that an option can have time value (extrinsic value) even if it is *at the money* or *out of the money*? Explain.
(See *MFGC Student Workbook*, page 79, #14c.)

15. Procedures for Using Grain Option Market

REFERENCE: *MFGC Student Manual*, pages 121-124, Procedures for Using Grain Option Market.

Visual 4-23 Preliminary Steps Before Purchasing Option
Visual 4-24 Steps in Using Put Options

15a. Question: What steps should you take when considering purchasing options?
(See *MFGC Student Workbook*, pages 79-80, #15a.)

Study *Visual 4-23*.

15b. Question: What steps would you follow in using put options?
(See *MFGC Student Workbook*, page 80, #15b.)

Study *Visual 4-24*.

15c. Exercise: On December 1 you harvested and stored 6,000 bushels of corn on your farm. Using the following market information, localize your strike price to obtain your minimum selling price if a put option was purchased.
(See *MFGC Student Workbook*, pages 80-81, #15c.)

On December 1 - 6,000 bu. corn in on-farm storage

Strike price	$2.00
Premium	0.14
March corn futures	1.97
Cash price	1.78
Historic basis	0.16

Localize the strike price to obtain your minimum selling price.

Strike price		$2.00
Less:		
Premium	$0.14	
Historic basis	0.16	
Interest on premium	0.02	
Broker fee	0.01	
	$0.33	
		- 0.33
Answer: Minimum selling price		$1.67

Put Option Exercises

In the following two examples, a March put option of 5,000 bushels is to be purchased by the producer. The market information for December 1, given before in #15c, is the same for each example. However, the market information on February 15 is different to illustrate how different price combinations can change the outcome of purchasing an option.

Put Option Example 1. Price protection with declining cash and futures prices; basis strengthening.
(See *MFGC Student Workbook*, page 81, *Put Option Example 1.*)

On February 15

Cash price	$1.65	
March futures	1.82	
Premium	0.22	(in the money)
Trading cost	0.03	

(See table below.)

Cash price	$1.65
Gain in option premium	+0.08
Gross price	$1.73
Trading costs	- 0.03
Net price	$1.70

Date	Option	Underlying Futures	Premium	Basis
Dec. 1				
6,000 bu. corn in storage	Buy March corn put option	March corn		
Cash price $1.78	Strike price $2.00	futures $1.97	$0.14	- $0.19
Feb. 15				
Sell 5,000 bu. corn	Sell March	March corn		
Cash price $1.65	put option	futures $1.82	$0.22	- $0.11
			in the money	+ $0.08

In this period of declining cash and futures prices, the basis strengthened. The option was *in the money* and was worth $0.08 per bushel. When the additional premium was added to the cash price and the trading costs were subtracted, the net price was above the cash price by $0.05 per bushel and above the minimum selling price by $0.03.

Put Option Example 2. Price protection with cash and futures prices increasing and the basis strengthening. (See *MFGC Student Workbook*, page 82, *Put Option Example 2.*)

On February 15

Cash price	$1.92	Premium	0.00	(out of the money)
March futures	2.06	Trading costs	0.03	

Put Option Example 2 *(continued)*

Date	Option	Underlying Futures	Premium	Basis
Dec. 1.				
6,000 bu. corn in storage	Buy March corn put option	March corn		
Cash price $1.78	Strike price $2.00	futures $1.97	$0.14	- $0.19
Feb. 15				
Sell 5,000 bu. corn	Let option expire *or* Sell if some time	March corn		
Cash price $1.92	value exists	futures $2.06	$0.00	- $0.14
		out of the money		- $0.05

Cash price	$1.92
Premium	- 0.14
Gross price	$1.78
Trading costs	- 0.03
Net price	$1.75

In this period of increasing futures and cash prices, the put option was *out of the money* and had no intrinsic value. There might have been a small time value (extrinsic value) if a trader thought the option would move into the money. Exercising this option would have meant selling it for $2.00 and, in closing out the position in the futures market, repurchasing it at $2.06.

Commission fees would also be added to the costs of entering the futures market.

The net price received ($1.75) was lower than the cash price ($1.92) on February 15. However, the net price was above the minimum selling price of $1.67.

While this option position caused you to sell your corn below the cash price, you did have the satisfaction of knowing that you would not have to sell your corn below the minimum selling price of $1.67.

16. How Much Price Insurance Should Be Purchased?

REFERENCE: *MFGC Student Manual*, pages 123-124, How Much Price Insurance Should Be Purchased?

16a. Question: How much price protection can you afford to purchase? Is more price protection always better?
(See *MFGC Student Workbook*, page 83, #16a.)

Answer: Each situation is unique and should be determined on its own merits.

What strike price for corn would you recommend purchasing in the following situation?

Strike price	$1.90	$2.00	$2.10
Deductions			
Historic basis	0.16	0.16	0.16
Premium	0.14	0.19	0.26
Broker fee	0.01	0.01	0.01
Interest on premium	0.02	0.03	0.05
Total deductions	0.33	0.38	0.48
Minimum selling price	$1.57	$1.62	$1.62

In this situation, increasing the strike price from $1.90 to $2.00 increased the minimum selling price by $0.05. Increasing the strike price from $2.00 to $2.10 did not increase the minimum selling price. (Remember, each situation is unique.)

17. Advantages and Disadvantages of Purchasing Commodity Options

REFERENCE: *MFGC Student Manual*, page 124, Advantages and Disadvantages of Commodity Options.

Visual 4-25 Commodity Options Advantages
Visual 4-26 Commodity Options Disadvantages

17a. Question: What are the advantages of purchasing commodity options?
(See *MFGC Student Workbook*, pages 83-84, #17a.)

17b. Question: What are the disadvantages of purchasing commodity options?
(See *MFGC Student Workbook*, page 84, #17b.)

17c. Question: In May you purchase options to cover 25,000 bushels of soybeans at a premium of $0.38 per bushel. If your production fell to 19,000 bushels, what would your per-bushel premium be?
(See *MFGC Student Workbook*, page 84, #17c.)

Answer:
25,000 bu. x $0.38 = $9,500.00 ÷ 19,000 bu.
= $0.50 per-bushel premium

18. Deferred Pricing

REFERENCE: *MFGC Student Manual*, pages 124-128, Deferred Pricing.

Visual 4-27 Steps in Delayed Pricing
Visual 4-28 Delayed Price Agreement

18a. Question: When does the title to grain sold under a delayed price contract transfer from the producer to the grain buyer?
(See *MFGC Student Workbook*, page 85, #18a.)

Answer: When the grain is delivered to the elevator.

18b. Question: What is the purpose of selling grain under a delayed price contract?
(See *MFGC Student Workbook*, page 85, #18b.)

Answer: So that the producer has the opportunity to set the price at some future date of his/her own choosing.

18c. Question: What are the steps involved in selling grain under a delayed price contract?
(See *MFGC Student Workbook*, page 85, #18c.)

Show *Visual 4-27* for the steps involved.

18d. Question: What are the conditions specified in the contract shown in *MFGC Student Manual*, Figure 4-15, Delayed Price Agreement?
(See *MFGC Student Workbook*, page 86, #18d.)

Show *Visual 4-28*, Delayed Price Agreement.

18e. Question: Obtain copies of other Delayed Price Contracts from local grain buyers and compare the conditions specified in each of the contracts. From the seller's standpoint, which contract has the most favorable service charges?
(See *MFGC Student Workbook*, page 86, #18e.)

18f. Question: In the period between grain delivery and pricing, what type of price movement prediction on the grain market would cause you to consider delayed pricing of your grain?
(See *MFGC Student Workbook*, page 86, #18f.)

18g. Question: When using a delayed pricing agreement, what protection do you have against financial failure of the dealer? against accidental destruction of the grain after the dealer receives title, but before you receive payment for the grain?
(See *MFGC Student Workbook*, page 86, #18g.)

Review Grain Dealer Licensing in *MFGC Student Manual*, Chapter 2.

19. Delayed Pricing Exercise

19a. Exercise: On December 15 you have 20,000 bushels of corn in storage on your farm. You study the market news and predict that the basis will strengthen to - $0.17 as both cash and futures prices advance. What is the local basis?
(See *MFGC Student Workbook*, page 87, #19a.)

On December 15	
Cash corn price	$1.82
March futures	- 2.12
Local basis	- $0.30

You sign a delayed price contract with your local grain dealer. You are to price the grain by March 10. The service charge will be $0.26 per bushel.

Situation 1 (See *MFGC Student Workbook*, page 87.)
On March 10 your prediction proves to be correct. Now what is the local basis?

Cash price	$2.27
March futures	- 2.44
Local basis	- $0.17

What would your transaction be on March 10?

Cash corn	$2.27
Service charge	- 0.26
Net price	$2.01

$2.01 - $1.82 = $0.19

Conclusion: Pricing the grain on March 10 resulted in a gain of $0.19 per bushel over the December 15 cash price.

Situation 2 (See *MFGC Student Workbook*, page 88.)
On March 10 the basis strengthened less than you predicted, even though the cash and futures prices advanced.

Cash price	$2.04
March futures	- 2.28
Basis	- $0.24

What would your transaction be on March 10?

Cash price	$2.04
Service charge	- 0.26
Net price	$1.78

$1.82 - $1.78 = $0.04

Conclusion: Pricing the grain on March 10 resulted in a loss of $0.04 per bushel under the December 15 cash price.

Situation 3 (See *MFGC Student Workbook*, page 88.)
On March 10 the basis weakened while the cash and futures prices declined.

Cash price	$1.79
March futures	- 2.11
Local basis	- $0.32

What would your transaction be on March 10?

Cash price	$1.79
Service charge	- 0.26
Net price	$1.53

$1.82 - $1.53 = $0.29

Conclusion: Pricing the grain on March 10 resulted in a loss of $0.29 per bushel under the December 15 cash price.

19b. Question: When grain buyers enter into a delayed pricing agreement with a producer, how do they protect themselves against unfavorable price changes?
(See *MFGC Student Workbook*, page 89, #19b.)

19c. Question: You are deciding whether to place your grain in commercial storage or to enter into a delayed pricing agreement. What costs should you compare?
(See *MFGC Student Workbook*, page 89, #19c.)

20. Advantages and Disadvantages of Delayed Grain Pricing

REFERENCE: *MFGC Student Manual*, page 128, Advantages and Disadvantages of Delayed Pricing.

Visual 4-29 Advantages of Delayed Pricing
Visual 4-30 Disadvantages of Delayed Pricing

20a. Question: What are the advantages of delayed grain pricing?
(See *MFGC Student Workbook*, page 89, #20a.)

20b. Question: What are the disadvantages of delayed grain pricing?
(See *MFGC Student Workbook*, page 90, #20b.)

21. Basis Contract

REFERENCE: *MFGC Student Manual*, pages 128-132, Basis Contract.

Visual 4-31 Steps in Using the Basis Contract
Visual 4-32 Basis Contract
Visual 4-33 Specified Conditions in a Basis Contract

21a. Question: When entering a basis contract with your local elevator, what will you be establishing for the time specified in your contract to price your grain?
(See *MFGC Student Workbook*, page 90, #21a.)

21b. Question: What are the four steps involved in using the basis contract?
(See *MFGC Student Workbook*, page 90, #21b.)

Study *Visual 4-31*.
Answer:
1. Negotiate basis contract with local elevator.
2. Understand specified conditions in the basis contract.
3. Study market news and outlook reports and predict whether basis will strengthen or weaken.
4. Establish basis and sign contract.

Use *Visual 4-32*, Basis Contract. Also have the students study *MFGC Student Manual*, Figure 4-16, pages 129-130. Copies of basis contracts from local elevators can also be used to familiarize the students with the contract forms.

21c. Question: What specified conditions should you look for in a basis contract?
(See *MFGC Student Workbook*, page 91, #21c.)

Use *Visual 4-33*.
Answer:
1. Conditions for delivering grain: grading procedures, moisture determination and discount schedules.
2. Is a fee charged?
3. Establishment of accepted basis.
4. Can contract be extended if you think futures price will improve?
5. Transfer of title to grain.
6. Will advanced payment be made when grain is delivered?

21d. Question: Your grain is being marketed with a basis contract. On the date you price your grain, how is the net price determined?
(See *MFGC Student Workbook*, page 91, #21d.)

Answer: The futures price for the contract month established in the contract *minus* (or *plus*) the basis established in the contract.

21e. Question: In relation to futures price fluctuations and the strengthening or weakening of the basis, what kind of price prediction would cause you to consider entering into a basis contract?
(See *MFGC Student Workbook*, page 91, #21e.)

Answer: An increase in the futures market for the contract month specified along with a weakening of the basis.

21f. Question: Before entering into a basis contract, what information do you need when making your market predictions, in addition to what you can obtain from market news and outlook reports?
(See *MFGC Student Workbook*, page 91, #21f.)

Answer: The local historic basis during the period of time you expect to price your grain. This will assist you in predicting whether the basis will strengthen or weaken from the time you entered into the contract until you price the grain.

22. Determining the Net Price to Be Paid for Grain Marketed under a Basis Contract

(See *MFGC Student Workbook*, page 92.)

October 15
You enter into a basis contract with your local elevator to market your soybeans.

Local cash price soybeans	$6.01
March soybean futures	- 6.22
Local basis	- $0.21

You agree to price your soybeans during February, based on the March soybean futures price. The local historic basis for March soybean futures during February is 32 under.

On the day in February you decide to price your soybeans, the basis established in your contract is 22 under the March soybean futures price.

Net Price Example 1
(See *MFGC Student Workbook*, page 92.)

February 10
You decide to price your soybeans that are under the basis contract. Determine the net price you will receive when the following prices prevail.

Local cash price	$5.98
March futures	- 6.48
Local basis	- $0.50
March futures price	$6.48
Established basis	- 0.22
Net price	$6.26

Conclusion: Your prediction concerning the weakening basis was correct. You sold your soybeans at - $0.22 when the actual basis was - $0.50. The net price received was above both the February 10 and October 15 cash price. This was a successful use of the basis contract.

Net Price Example 2
(See *MFGC Student Workbook*, page 93.)

February 10
You decide to price your soybeans that are under the basis contract. Determine the net price you will receive when the following prices prevail.

Local cash price	$5.06
March futures	- 5.19
Local basis	- $0.13
March futures price	$5.19
Established basis	- 0.22
Net price	$4.97

Conclusion: Your prediction concerning the weakening of the basis did not prove to be correct. It strengthened to - $0.13 on February 10 from - $0.21 on October 15. As a result, the net price received for the soybeans was under the cash price for both February 10 and October 15. This did not prove to be a successful use of the basis contract.

23. Advantages and Disadvantages of Entering into a Basis Contract

REFERENCE: *MFGC Student Manual*, pages 131-132, Advantages and Disadvantages of Basis Contracts.

Visual 4-34 Basis Contract Advantages and Disadvantages

23a. Question: What are the advantages of entering into a basis contract?
(See *MFGC Student Workbook*, page 93, #23a.)

23b. Question: What are the disadvantages of entering into a basis contract?
(See *MFGC Student Workbook*, pages 93-94, #23b.)

24. Government Programs

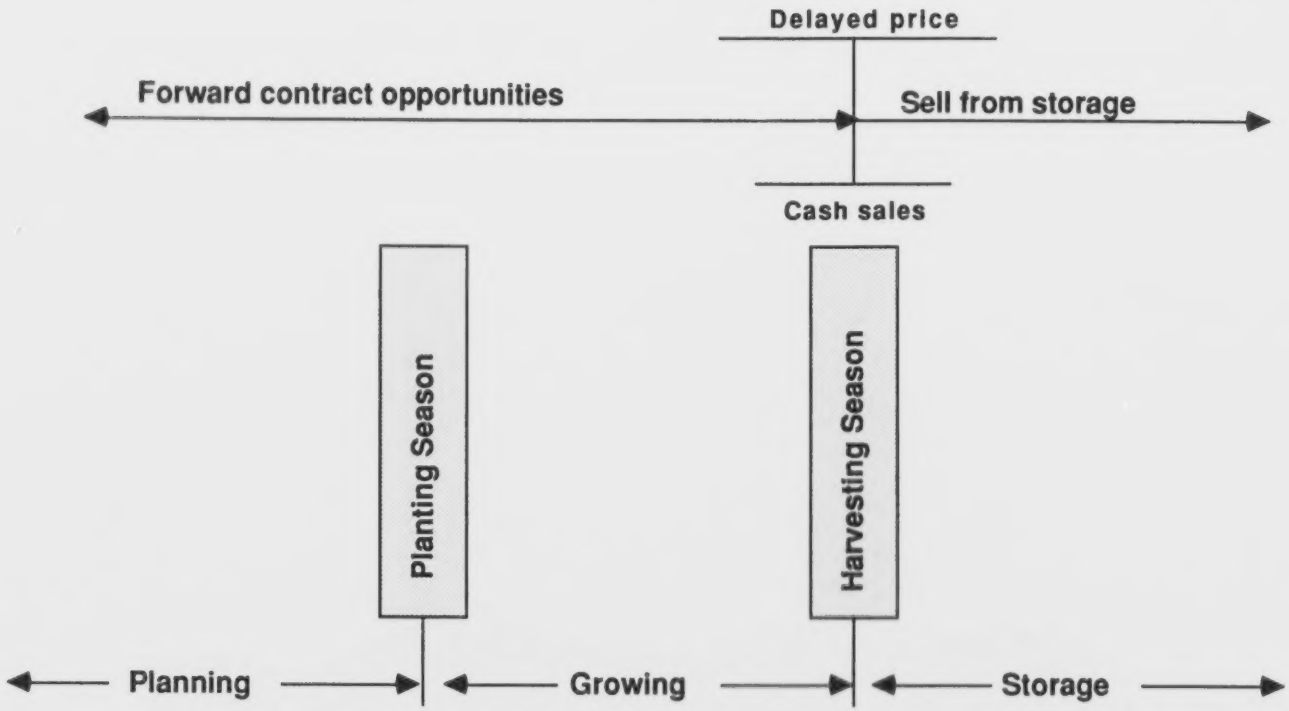
REFERENCE: *MFGC Student Manual*, page 132, Government Programs.

Government programs change with the current political and economic conditions. Contact your local ASCS office to determine the advantages and disadvantages of taking part in government programs.

24a. Question: In general, what are the advantages and disadvantages of taking part in government programs?
(See *MFGC Student Workbook*, page 94, #24a.)

Visual 4-35 Government Programs, Advantages and Disadvantages

GRAIN SELLING OPPORTUNITIES



Time phases for planning grain marketing strategies may extend from 12 months before to 12 months after harvest. Prices can be set for grain at any time during the planning, growing or storage phases of production.

FINISHING FEEDER PIGS BUDGET

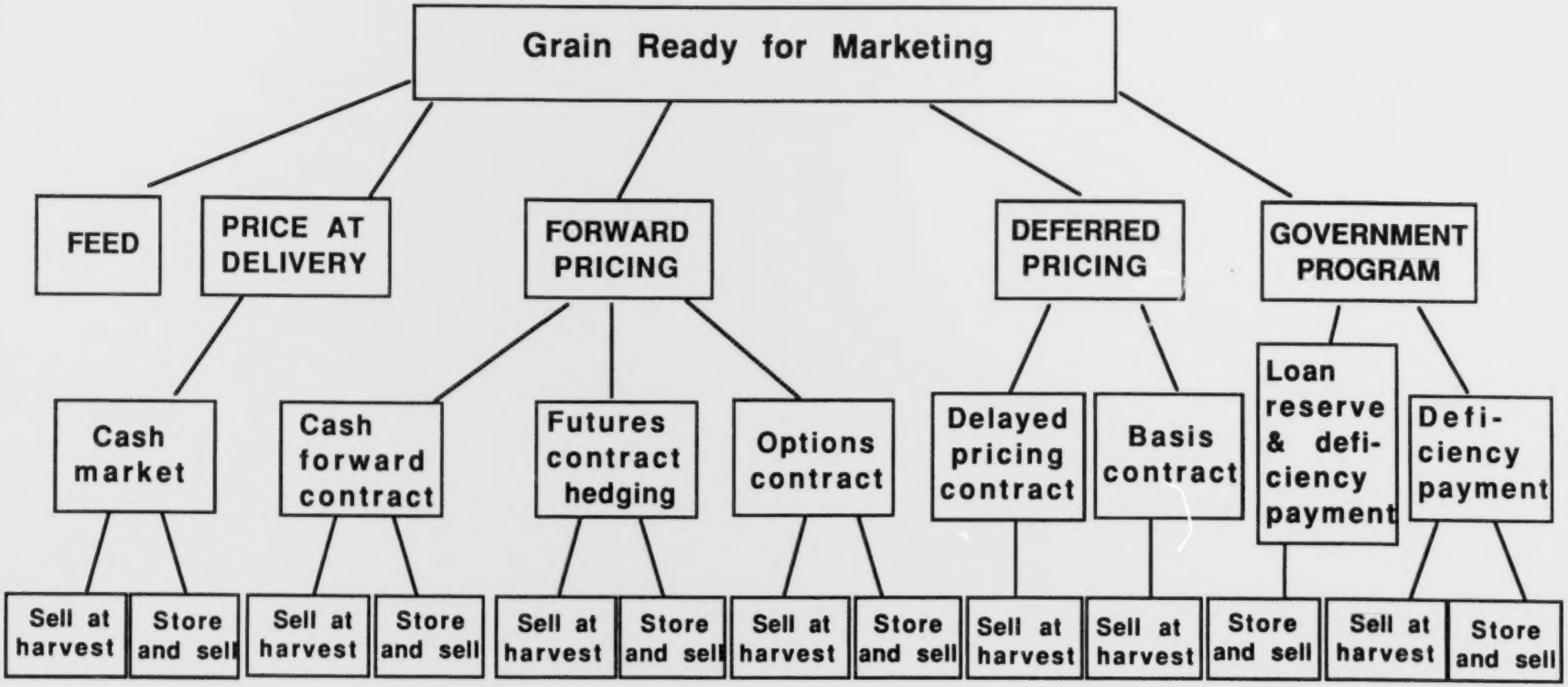
FINISHING 100 PURCHASED FEEDER PIGS BUDGET - 1983
LOW INVESTMENT FACILITIES 1/

ITEM	QUANTITY	UNIT	PRICE	AMOUNT	YOUR BUDGET
RECEIPTS 2/					
Market Hogs 97 @ 220	213.4	cwt.	$ 55.00	$ 11737	$_____
VARIABLE COSTS					
Feed 3/					
Corn	960	bu.	$ 2.30	$ 2208	$_____
Supplement	107	cwt.	16.00	1712	_____
Total Feed Cost				$ 3920	$_____
Purchased Feeders 4/	50	cwt.	$ 100	$ 5000	$_____
Vet & Medicine				218	_____
Marketing 5/				320	_____
Electricity and Fuel				133	_____
Miscellaneous				173	_____
Interest on Feeders 6/	$ 5000	4 mo.	14%	233	_____
Interest on Oper. Cap. 7/	$ 2222	4 mo.	14%	104	_____
Total Variable Costs				$ 10101	$_____
FIXED COSTS					
Labor Charge	100	hrs.	$ 4.50	$ 450	$_____
Equipment Charge 8/	$ 1520		22%/yr.	334	_____
Building Charge 8/	$ 2100		19%/yr.	399	_____
Management Charge	5% of Gross			587	_____
Total Fixed Costs				$ 1770	$_____
TOTAL COSTS				$ 11871	$_____

	Market Hogs @ $ 50	$ 55	$ 60 per cwt.	
RETURN ABOVE VARIABLE COSTS 9/	$ 569	$ 1636	$ 2703	_____
RETURN ABOVE FIXED COSTS 9/	$ -1148	$ -134	$ 879	_____

1/ Budget for 100 purchased pigs fed in an open-front pole building with concrete feeding slab, assuming 3 groups are fed each year.
2/ With a 3% mortality rate, 97 hogs sold @ 220lb.
3/ Feed conversion is 394 lb./cwt. gain.
4/ Including trucking and commission : 100 pigs bought at 50 lb.
5/ $ 1.50 per cwt.
6/ Hogs sold each 4 months; feeder investment used only 4 months.
7/ 50% of all variable costs except feeders, marketing, and interest.
8/ Estimated new cost for equipment and buildings per 100 hogs assuming three groups are fed per year.
9/ All costs except management held constant and total receipts changed same percentage as price.

MARKETING ALTERNATIVES



THE FIVE PARTS OF A GRAIN CONTRACT

1. Title Transfer - Change of grain ownership and the time this takes place.

2. Place where title transfer takes place.

3. Price - Agreed-upon price and method of payment.

4. Quality - Grade and conditions of grain.

5. Quantity - Amount of grain being transferred.

SAMPLE GRAIN CONTRACT

PURCHASE CONFIRMATION AND CONTRACT

CONTRACT NO 14501

BOUGHT FROM:

_____

_____

_____

DATE: _____

NET BUSHELS	COMMODITY	PRICE	SHIPPING PERIOD	PLACE OF DELIVERY	CBT OPTION

This contract was made By Phone / In Person (strike thru one) at _____ (time) A.M. / P.M. at _____ (place) elevator office,

by _____ (Seller or Representative) and _____ (Buyer's Representative)

The statements above and below are understood to be an accurate statement of the terms and conditions of the agreement between the parties hereto. Failure to advise us immediately of any discrepancies, objections to, or disagreement with such terms and conditions shall be construed as an acceptance of this contract.

1. — Grade premiums and discounts at time of delivery.
2. — Buyer's weights and grades to apply.
3. — Only weight slips marked "CONTRACT" will be applied.
4. — Contract Bushels is to be an exact amount.
5. — Overfill Bushels will be priced at the buyer's market price at time of delivery.
6. — The MINIMUM damage chargeable to the seller, in the case of failure to fulfill this contract, would be the difference between the contract price and the replacement cost at the time of cancellation.
7. — Seller warrants that the grain to be delivered hereunder will be delivered free and clear of any and all liens, and will meet the Federal Food, Drug and Cosmetic Act requirements.
8. — Every effort will be made by buyers to accept the grain covered by this contract as it is delivered. However, if this is impossible, due to conditions beyond buyer's control, it does not cancel seller's obligation.
9. — Any extension of the delivery time is to be at the buyer's option.
10. — It is agreed that this contract shall be binding on the heirs, executors, personal representatives, and assigns of the parties hereto.

WE CONFIRM PURCHASE FROM YOU AS NOTED ABOVE: _____ (firm name)

Per _____

Seller should retain this copy

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GRAIN DEALER POLICIES AND PROCEDURES TO CHECK BEORE SIGNING CONTRACT

1. Sampling and grading procedures
2. Moisture testing
3. Methods of determining dockage
4. Discount schedules
5. Promptness of payment.

Know when title transfer of your grain takes place.

a. At time of dealing and unloading *or*

b. After delivery and unloading when the grain is in the grain dealer's storage.

CASH MARKET
PRICE AND DELIVER AT HARVEST

The title of grain transfers when grain crosses the scales.

Advantages

1. It is easy and well understood.
2. No storage is required.
3. Money is available at harvest.
4. Risk is limited to growing season.
5. Price is immediately known.
6. Wet corn is shrunk only to 15.5%, while some markets shrink to 14% for storage.

Disadvantages

1. There is no price flexibility.
2. Harvest prices are usually lower than at other times of the year.
3. The basis is usually weak (wide) at harvest.
4. Delivery is often delayed due to congestion at the elevator.
5. This way is too easy for the producer and may keep him or her from exploring better marketing alternatives.

CASH MARKET

STORE GRAIN ON FARM, THEN PRICE AND DELIVER LATER

The title of grain transfers when grain crosses the scales.

Advantages

1. There is price flexibility. Pricing can be done at various times after harvest during the market year.
2. There is flexibility and control over where and when grain is delivered.
3. The producer can realize gain from price appreciation and basis strengthening.
4. On-farm storage is used.

Disadvantages

1. Price speculation is continued after harvest.
2. Risk is taken in maintaining grain quality.
3. Seasonal workload may reduce timeliness of meeting marketing opportunities.
4. Storage costs may exceed selling price improvement.
5. Money is not available until grain is sold.
6. Producer may feel compelled to use storage even in years it should not be used.

CASH MARKET

STORE AT COMMERCIAL ELEVATOR, RECEIVE WAREHOUSE RECEIPT, AND PRICE AND SELL LATER.

The title of grain transfers when the warehouse receipt is returned to elevator and grain is sold.

Advantages

1. There is price flexibility.
2. No management is required to maintain grain quality.
3. Producer can sell simply by delivering warehouse receipt.
4. Warehouse receipt can serve as collateral for obtaining loan.
5. Producer can realize gain from price appreciation.

Disadvantages

1. Producer is still speculating on price in the cash market.
2. Storage and holding costs may be more than improvement in selling price.
3. Money is not available at harvest unless commercial loan is obtained.
4. Control over where to sell is reduced.
5. Producer must pay commercial storage rates.
6. There may be a harvest bottleneck at the elevator.

STEPS IN FORWARD CONTRACTING GRAIN

1. Contact one or more grain buyers.

2. Determine conditions of grain dealers' forward pricing contract.

   - What are the terms?
     (Can or should you meet the terms?)

   - Is there flexibility for delivering grain?

   - How are differences to be settled?

3. Determine buyer's bid for your grain.

4. Study grain marketing news and evaluate the buyer's bid.

SAMPLE GRAIN SALES CONTRACT USED WHEN FORWARD-CONTRACTING GRAIN

The Ohio Grain Company

Mechanicsburg, Ohio Marysville, Ohio Kileville, Ohio

GRAIN PURCHASE CONFIRMATION No. 0496

Date .....

The Ohio Grain Company, hereinafter called Buyer, does hereby confirm purchase

from ..... of ....., Ohio,
hereinafter called the Seller, of grain listed below:

Net Bushels	Commodity	Price / bu.	Delivery Period	Place of Delivery	Grade *

1. * Grain delivered grading lower than this grade will be discounted at prevailing discount schedules.

2. Seller agrees that price shall be subject to the Buyer's discounts at the time of delivery and if the quality factors of the grain delivered fall below the prevailing discount schedules, Buyer may reject it.

3. Basis (unpriced) contracts will be priced only by the Seller instructing the Buyer to execute a trade on the Chicago Board of Trade for the purpose of establishing the cash price of the contract.

4. Buyer agrees to accept delivery of grain during normal business hours at the elevator on or before the stated delivery date, subject however to the right of rejection granted in Item 2 above. If grain is not delivered within the time specified, this contract will be considered open until Buyer notifies Seller in writing that the same is cancelled. Such notice shall be sent by ordinary mail or delivered in person to the Seller and the date of mailing or personal delivery shall be the date of default for the purpose of calculating Buyer's damages for Seller's failure to deliver as promised in this contract. The Seller is obligated to the Buyer to the extent of these damages and this contract remains open and valid until such obligations are fulfilled.

5. Every effort will be made by Buyer to accept the grain covered by this contract as it is delivered. However, if this is impossible due to conditions beyond Buyer's control, it does not cancel Seller's obligation.

Payment for grain delivered under this contract is due: (Check one)

( ) On ..... 19 .....

( ) At final delivery under the contract.

THE OHIO GRAIN COMPANY

By: .....

Seller: .....

Please sign and return attached copy promptly to The Ohio Grain Company. Keep original for your records.

Regardless of whether the enclosed confirmation is signed and returned, it is understood that by the retention of this confirmation by the Seller, without notifying Buyer of error therein within ten days from the time of the receipt of this confirmation by the Seller, is an acknowledgement and acceptance of the contract exactly as stated above.

FORWARD-CONTRACTING GRAIN

Producer enters into contract to sell grain at some future time under specified conditions. Title to grain transfers at time contract is signed.

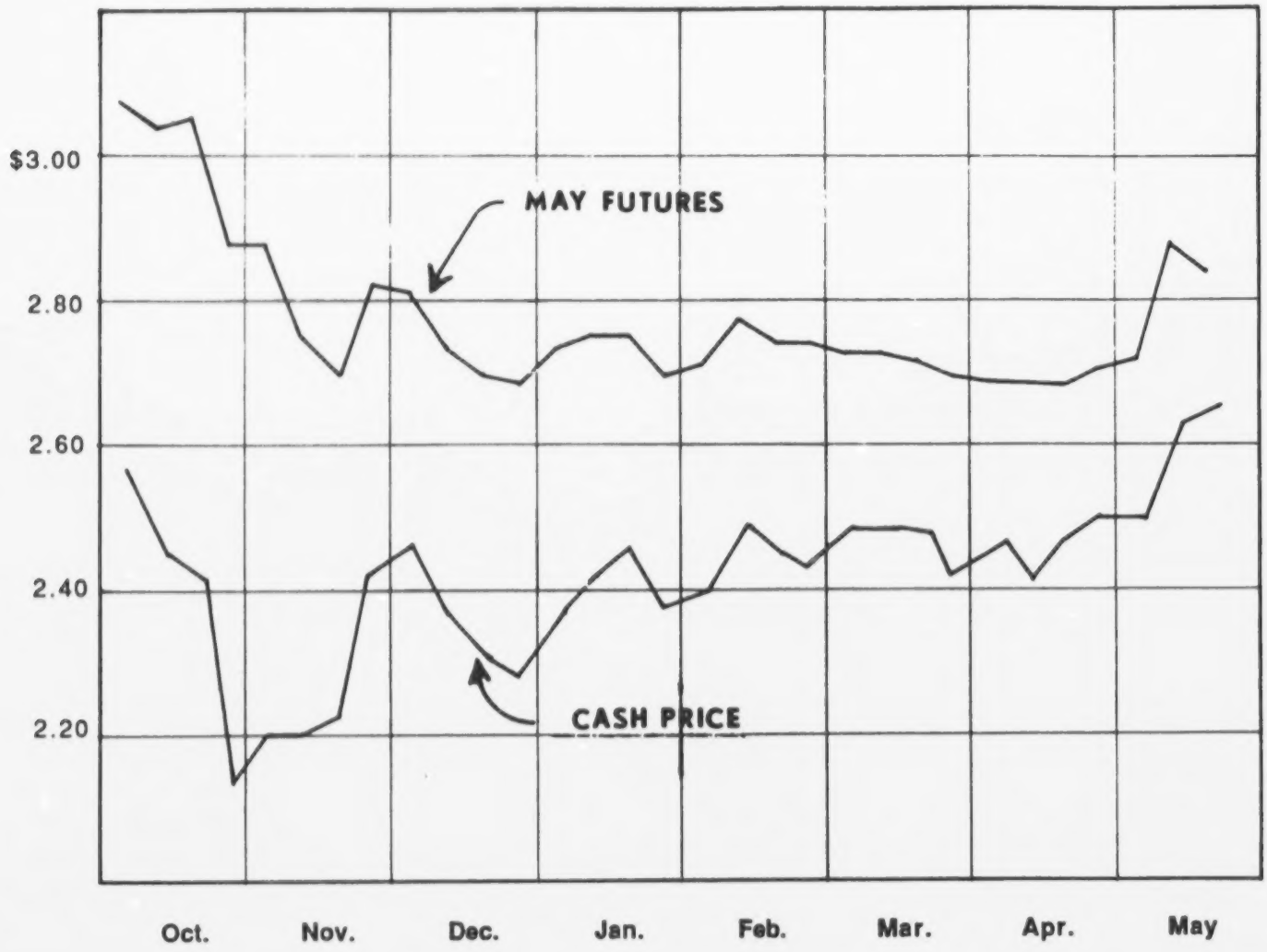
Advantages

1. Sales are final; market fluctuation will not affect price.
2. It is easily understood and is the most popular forward-pricing alternative.
3. There is no deposit of money or margin calls (as in futures contract).
4. Buyer and seller can easily enter into a contract and it is legally binding on both.
5. Both basis and price risks are eliminated.
6. Producer can sell any amount desired. It does not have to be in 1,000 or 5,000 bushel units.
7. Lengthening of the market year is possible.

Disadvantages

1. Producer must deliver grain. If grain is not produced, the producer is still obliged to cover the contract.
2. If there is a benefit from basis gain, the appreciation in basis goes to the elevator.
3. Price is not flexible. If the market conditions change, the producer cannot get out of the contract without a charge.

MOVEMENT OF CASH AND MAY FUTURES PRICES



REASONS FOR HEDGING

1. Establish the price of a crop before harvest.

2. Establish the price of grain in storage for later delivery.

DETERMINING ADVISABILITY OF HEDGING

Hedging is buying and selling of futures contracts.

1. **Localize futures price by adjusting to cash equivalent.**

   Futures price ***minus***
   - **The basis**
   - **Cost of quality difference**
   - **Brokerage fee or commission**
   - **Interest on margin money**

2. **Estimate probable size of later cash transaction. Do not hedge more grain than will be available for sale.**

3. **Estimate net returns with a hedge.**

4. **Study market and outlook reports and predict direction market may take.**

5. **Estimate returns without hedging.**

6. **Compare returns with and without hedging. Consider ability to absorb risk without hedging.**

7. **Select most favorable action.**

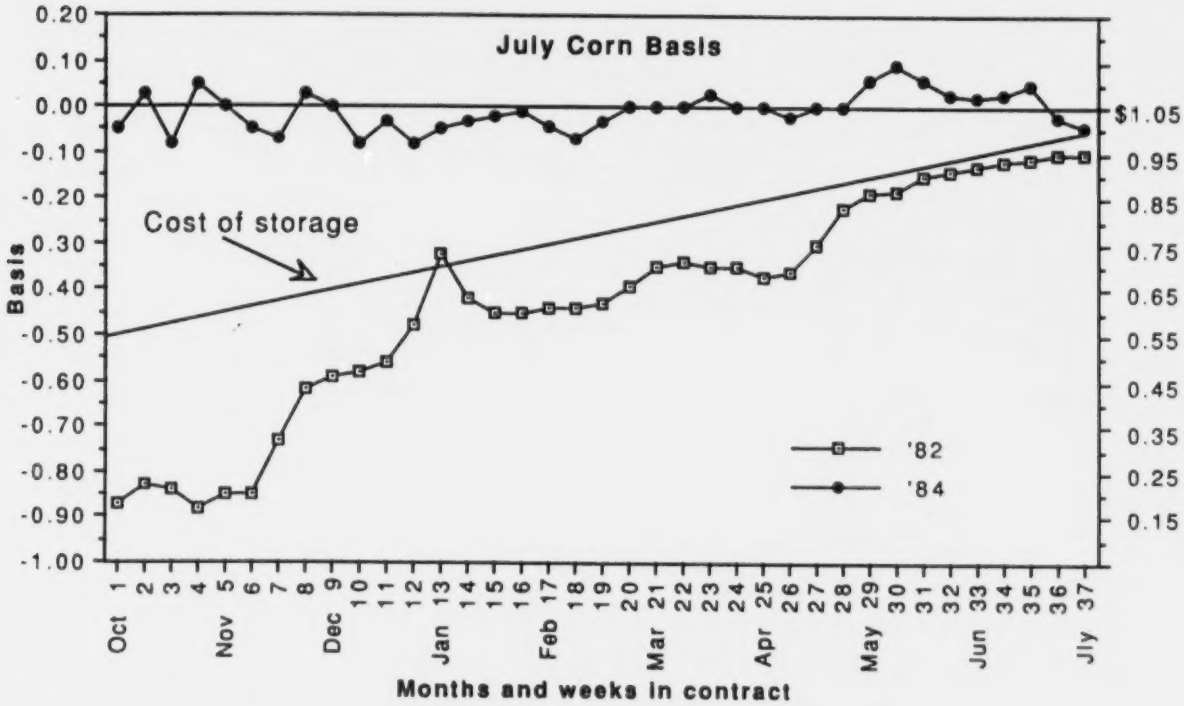
STEPS IN HEDGING BEFORE HARVEST

1. Sell futures contracts to cover expected production before planting or during growing season.

2. Sell cash grain at or soon after harvest.

3. Buy futures contracts to cancel hedging position at time cash grain is sold.

BASIS MOVEMENT AND THE COST OF STORAGE



When a weak basis moves up to or is less than the remaining cost of storage, lift hedge.
A basis that does not strengthen will not pay storage.

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STEPS IN HEDGING STORED GRAIN

1. Store harvested grain in
   - on-farm storage *OR*
   - commercial storage
2. Sell futures contracts to cover amount of stored grain.
3. Sell stored grain at a future date.
4. Buy futures contracts to cancel hedging position at time grain is sold.

ADVANTAGES OF HEDGING

1. Hedging takes advantage of basis gain. Producers can usually lock in price for grain.

2. Hedging is flexible - Producer can move into and out of futures market at any time.

3. Futures market permits lengthening of marketing year.

4. Basis is more predictable than cash pricelevel.

5. A weak basis at time of hedging may strengthen enough to pay storage costs.

DISADVANTAGES OF HEDGING

1. Producer may have to borrow money to open an account and pay margin deposits.

2. Producer must conduct transactions through broker and pay commission fees.

3. Producer is subject to margin calls.

4. Producer accepts basis risks.

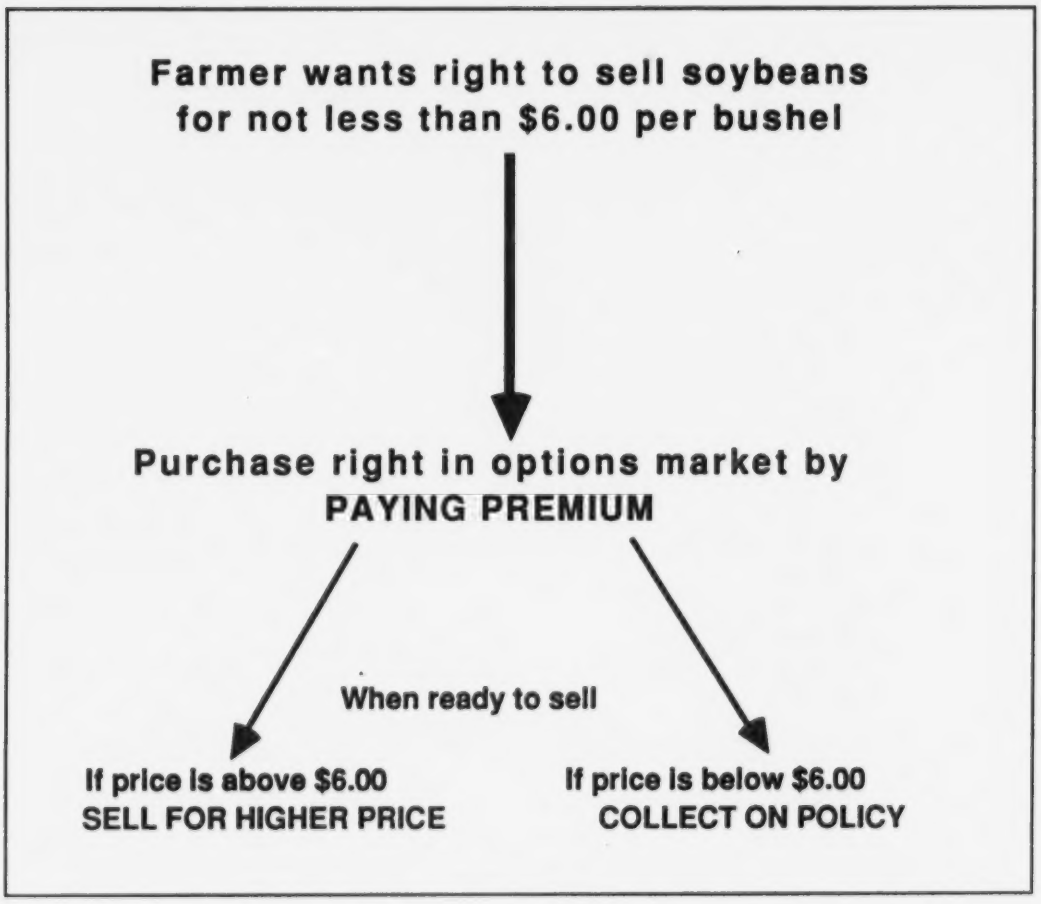
5. Producer must sell in 1,000 or 5,000-bushel units.

6. Producer must either deliver grain at maturity of contract or buy back contract before it goes off the board.

7. Producer cannot take advantage of higher prices if market improves.

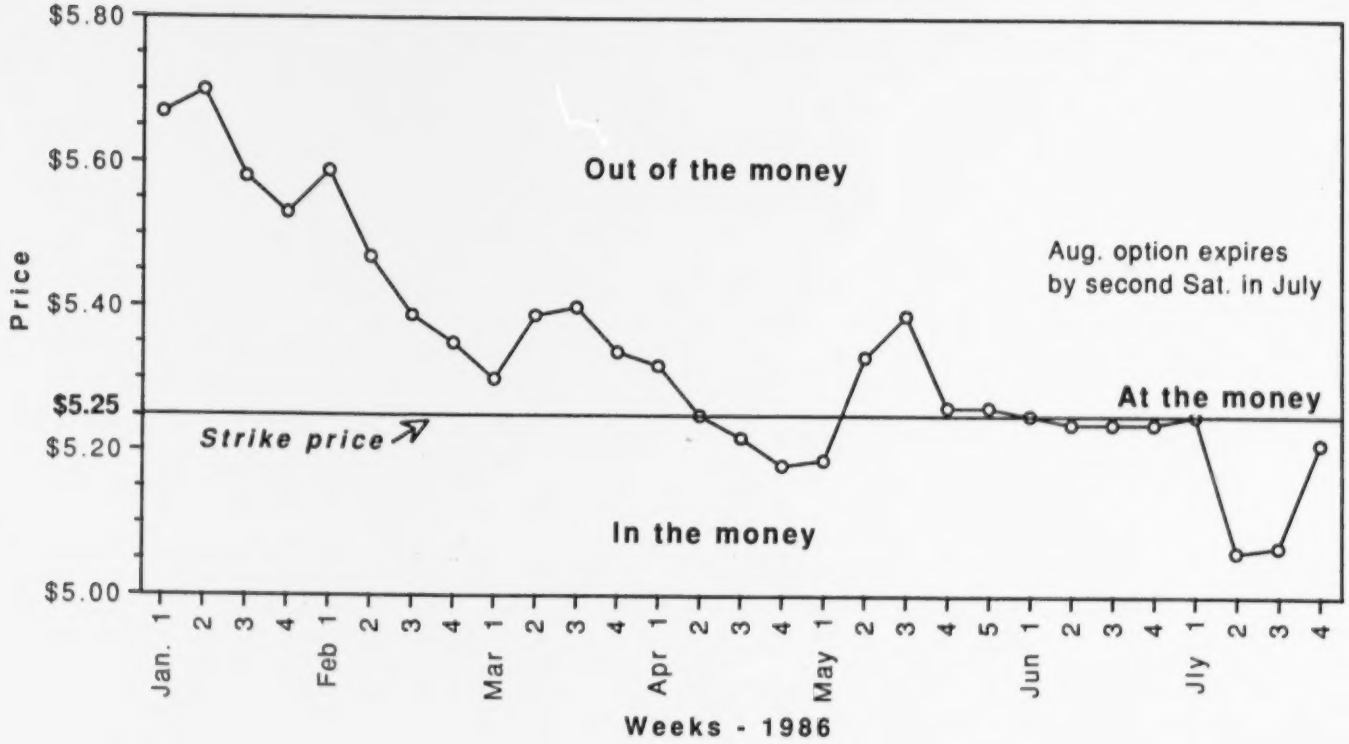
8. Some hedgers are tempted to speculate.

A COMMODITY OPTION CONTRACT



A floor is established below which grain will not be sold.

VALUE OF A SOYBEAN PUT OPTION



PRELIMINARY STEPS BEFORE PURCHASING OPTION

1. Localize strike price. Determine the minimum selling price it is offering in your local market by subtracting the following from the strike price.

   a. premium
   b. historic basis
   c. interest on premiums
   d. brokerage fee

2. Determine amount of grain to establish price for by purchasing put options.

3. Study market news and outlook reports to predict movement of market.

4. Determine if the floor price established is worth the premium cost.

5. Select most favorable action to take.

STEPS IN USING PUT OPTIONS

Options transactions are conducted through your broker.

1. **Purchase options to cover grain in production or in storage (5,000 bu. units).**

2. **Prior to options expiration date if the price of cash grain is:**

   a. **Above options floor price**

      - **Let option expire** ***and***
      - **Sell grain on cash market.**

   b. **Below options floor price**

      - **Sell your option or**
      - **Exercise option and close out futures positions.**
      - **Sell grain on cash market.**

COMMODITY OPTIONS ADVANTAGES

1. Options can be considered as price insurance. Costs are premiums and commission.

2. No margin account.

3. Strike price establishes floor under which grain will not have to be sold.

4. All other marketing alternatives still available.

5. Option holder has unlimited profit potential from favorable price movements while being protected from unfavorable price movements.

6. Using options removes risk of having to make delivery of a specific amount of grain.

7. Producers can plan price protection well in advance of harvest.

COMMODITY OPTIONS DISADVANTAGES

1. Options may not be available for all futures contract months.

2. When prices fall, hedging and forward contracting may result in higher prices than when options are purchased.

3. Full cost of premium must be paid when option is purchased thus increasing interest.

4. Brokers and producers must learn new terms when using options.

5. Good understanding of futures market is required when using options.

6. If crop production falls below the amount of grain the option contract specifies, the premium will be spread over fewer bushels thus increasing the cost per bushel.

STEPS IN DELAYED PRICING

1. Contact potential grain buyers. Compare their service charges.

2. Determine conditions of grain buyer's delayed pricing contract.

3. Study market news and outlook reports and determine advisability of using delayed pricing.

4. Sign the contract and establish time span for pricing grain.

   a. Deliver grain - title transfers to buyer

   b. Before contract expires, contact buyer to establish price. Price is cash bid that day minus service charges.

   c. Payment usually made when seller prices grain.

DELAYED PRICE AGREEMENT

Date _____ _____

Crop year _____

Commodities under this agreement: _____
GRAIN BUSHELS

It is hereby agreed that I, the undersigned seller, may from time to time, by my own choice, sell and deliver to the undersigned buyer, agricultural commodities as listed above, on which the price is to be established at a later date. I pledge that the commodities delivered pursuant to this agreement shall be free of any lien or encumbrance.

In selling commodities under this agreement, I, the seller, fully understand that I am transferring title to the undersigned buyer upon delivery, and that after delivery, I am creditor of the buyer for the market value of commodities so delivered until the price is established and the settlement is complete. If the buyer defaults in his/her obligation for settlement, I am common (unsecured) creditor of the buyer for the value of commodities not settled for.

Upon demand by the seller, the buyer is obligated to pay his/her regular bid price on the date of demand for the commodities being priced by the seller which have been delivered under this agreement, less any service charge which is due and payable to the buyer as marked on the scale ticket. Each scale ticket which is marked for Delayed Price hereby becomes a part of this agreement. The buyer shall pay the same price as he/she is bidding for like commodities being delivered to him/her for sale on that date by other sellers.

THE FOLLOWING SERVICE CHARGES PER BUSHEL SHALL APPLY TO THIS AGREEMENT:

- Free to August 1, 1986
- Then 6¢ to Sept. 15, 1986
- Then 15¢ to Jan. 1, 1987
- Then 0.1¢ per day to June 30, 1987
- Then new crop rates shall apply until processed.

If, after the signing of this agreement and the delivery of commodities thereon, the buyer causes a change to be made in the method of pricing or in the service charges as listed hereon, which would apply to the delivery of commodities after said change, a new agreement shall be signed between the buyer and the seller showing the date of the new agreement and the new service charges which are then in effect.

_____ I am not demanding a payment guarantee from the buyer: _____
seller int.

_____ I have read this agreement and I am familiar with its terms.

_____ seller

_____ address

_____ _____
authorized signature authorized signature

UNDER THE REQUIREMENTS OF ODA RULE # 901: 7-2-17, THIS AGREEMENT MUST BE SIGNED BY THE SELLER, AND THE ORIGINAL RETURNED TO THE BUYER IN ADVANCE OR AT THE TIME OF DELIVERY UNDER THIS AGREEMENT.

ADVANTAGES OF DELAYED PRICING

1. Producer delivers grain at harvest but does not have to take harvest time prices.

2. Grain marketing year can be lengthened to take advantage of advancing prices.

3. On-farm or commercial storage is not needed.

4. Producer does not have to maintain quality of grain in storage or have other storage problems.

5. Delayed pricing may aid in income tax management.

DISADVANTAGES OF DELAYED PRICING

1. Producer assumes risk of declining prices.

2. Producer pays service charge for privilege of pricing later.

3. Elevator takes title of grain at delivery and may sell it.

   Producer protected by Commodity Handlers Licensing program.

4. Producer earns no interest money even though title to the grain has been given up.

STEPS IN USING THE BASIS CONTRACT

1. Negotiate basis contract with local elevator.
2. Understand specified conditions in the basis contract.
3. Study market news and outlook reports and predict whether basis will strengthen or weaken.
4. Establish basis and sign contract.

BASIS CONTRACT

MID-STATES TERMINALS, INC.

1301 Miami Street • P.O. Box 357 • Toledo, Ohio 43691

- (419) 691-5783
- (800) 472-9573 (OH)
- (800) 551-1958 (MI-IN)

CONFIRMATION OF PURCHASE

A Subsidiary Of Country Fresh

CONTRACT NO. _____

CONTRACT DATE _____ TIME _____

OFFICE _____

MST TRADER _____

BROKER _____

CUSTOMER TRADER _____

YOUR CONTRACT NO. _____

SELLER

The following confirms the terms of the contract between the Seller and Buyer:
The Seller hereby sells and agrees to deliver, and the Buyer hereby purchases and agrees to receive in the amounts and on the Terms and conditions hereinafter set forth, the following:

QUANTITY _____ GRADE & COMMODITY _____

PRICE _____ DLVD/FOB _____

MARKET CENTER _____ BASIS CBOT _____

UNPRICED BASIS MUST BE PRICED BY _____ FUTURE PRICE _____

TIME OF SHIPMENT _____

WEIGHTS TO GOVERN _____ GRADES TO GOVERN _____

DISCOUNT SCALE/REMARKS _____ PAYMENT TERMS _____

This purchase is made subject to the trade rules of the National Grain and Feed Dealers Association.
We reserve the right to limit pricing subject to when the Chicago Board of Trade is open and trading.
SELLER CERTIFIES TITLE TO THE GRAIN BEING SOLD.
See Reverse for Additional Terms and Conditions

MID-STATES TERMINALS, INC.

Bought By _____

Please sign and return duplicate copy of this contract.
Failure to do so or to take exception immediately will constitute acceptance. E & OE

Seller _____

By _____

Date _____

BEST COPY AVAILABLE

SPECIFIED CONDITIONS IN A BASIS CONTRACT

1. Conditions for delivering grain:

   a. Grading procedures
   b. Moisture determination
   c. Discount schedules

2. Is a fee charged?

3. Establishment of accepted basis.

4. Can contract be extended if you think futures prices will improve?

5. Transfer of title to grain.

6. Will advanced payment be made when grain is delivered?

BASIS CONTRACT

Advantages:

1. Bypass of weak harvest basis and low prices.

2. May receive up to 80% of grain value at delivery.

3. Eliminates basis risk.

4. Shrink is to 15.5% rather than 14% for storage.

Disadvantages:

1. Price risk.

2. No chance for further basis appreciation.

3. Historical basis must be known.

4. Elevator can recall a portion of advance if market declines before grain is priced.

5. Limited application.

GOVERNMENT PROGRAMS

Advantages:

1. Provides price floor for producer.

2. May receive loan payment by delivering grain to government.

3. May receive deficiency payment based on target price and prices received first five months of marketing year.

4. May be tied to other marketing alternatives.

Disadvantages:

1. Makes participants limit planting.

2. May price U.S. grain out of world market.

3. May make participants assume storage costs for part of season.

CHAPTER 5

DEVELOPING A GRAIN PRODUCTION AND MARKETING PLAN

REFERENCE: *Marketing Farm Grain Crops Student Manual*, Chapter 5, Developing a Grain Production and Marketing Plan, pages 135-161.

The previous units of this guide to teaching grain marketing have been about specific marketing methods, the advantages and disadvantages of each and how each influences the market price received. All of these methods may not be available to all farmers. For example, some elevators may not contract for post-harvest delivery, while others do.

It is impossible to name one method of marketing as always better than the others. Changing conditions cause upward and downward movements of prices and make one method more desirable at one time and another more desirable at another time.

Probably most farmers use a combination of the methods of marketing discussed. For example, they may sell part of their crop at harvest and store a part of it. Some farmers forward contract a part of the crop and delay price or store another portion. Some use futures on part of the crop while marketing the remainder in some other manner, such as purchasing options. These farmers are trying to devise a marketing system and time of marketing which best suits their goals.

No one can consistently get the highest market price for grain. But with the use of the best marketing practices available, the returns from marketing grain should be well above average. To achieve this, an organized marketing plan of the methods and time of marketing must be developed.

1. Pricing Your Grain

REFERENCE: *MFGC Student Manual*, pages 135-137, Pricing Your Grain.

Visual 5-1 Toledo, Ohio Cash Corn Prices, 7-Year Average
Visual 5-2 At What Price Range Do You Sell Your Grain?
Visual 5-3 Ohio Monthly Cash Corn Prices
Visual 5-4 Ohio Monthly Cash Soybean Prices

1a. Question: Is it realistic to establish a goal of selling your grain at the highest price offered during the marketing year? Why or why not?
(See *MFGC Student Workbook*, page 95, #1a.)

(Refer to *MFGC Student Manual*, Figure 5-1, page 135.)
Visual 5-1 shows the high, mid-point, and low prices paid for corn at Toledo, Ohio over seven years, 1981-1987. (This information can be updated and local prices used to make the study more realistic for your students.)

7-year average corn prices:

High cash price	$2.96
Mid-point cash price	$2.53
Low cash price	$2.09

Visuals 5-3 and 5-4 show the 1984-1985 cash price, average price received, average price offered, and the percent of corn or soybeans marketed each month.

1b. Question: At what price range is most corn marketed?
(See *MFGC Student Workbook*, page 95, #1b.)

Show *Visual 5-2*, At What Price Range Do You Sell Your Grain? This shows graphically the high cash price paid, the low cash price paid, and the low price range where 75% of corn is marketed.

Answer: The low 1/3 of the price range is where 75% of corn is marketed.

1c. Question: If you sold your corn at $2.80 ($0.13 above the average price) instead of at $2.45 (in the low 1/3 of the price range), how much more would you receive per bushel?
(See *MFGC Student Workbook*, page 95, #1c.)

Answer: $2.80 – $2.45 = $0.35 more per bushel

1d. Question: If you raised 200 acres of corn, yielding 120 bushels per acre, how much would your income increase if you sold your corn at the higher price (of question 1c)?
(See *MFGC Student Workbook*, page 95, #1d.)

Have students do the following calculations:

	200	acres
	x 120	bushels per acre
	24,000	bushels
	x 0.35	increase per bushel
Answer:	$8,400	increase for year's production

Would it interest you to make $8,400 more per year than what you would get by taking the lower price?

1e. Question: At what price range will you aim to sell your grain?
(See *MFGC Student Workbook*, page 95, #1e.)

1f. Question: Do you plan to sell your grain all at one time or portions of your grain at different times of the marketing season? Why?
(See *MFGC Student Workbook*, page 96, #1f.)

1g. Question: What should you do to establish realistic grain marketing goals?
(See *MFGC Student Workbook*, page 96, #1g.)

REFERENCE: *MFGC Student Manual*, page 137.
Visual 5-5 Steps in Establishing Realistic Grain Marketing Goals

1h. Question: What is meant by developing a grain marketing plan that will help you meet the cash flow needs of your farm business?
(See *MFGC Student Workbook*, page 97, #1h.)

2. Production Costs as a Function of Marketing

REFERENCE: *MFGC Student Manual*, pages 137-139, Production Costs and Storage Carrying Charges as Functions of Marketing.

Visual 5-6 Production + Marketing = Profit (or Loss)

2a. Question: What information will you need to determine whether the price quoted for your grain will enable you to make a profit?
(See *MFGC Student Workbook*, page 97, #2a.)

Answer:
* Production costs
* Storage carrying charges if grain is stored

2b. Question: How can farmers and vocational agriculture students determine their production costs?
(See *MFGC Student Workbook*, page 97, #2b.)

Answer: A good set of records is essential to a successful marketing program.

3. Using Market Fundamentals

REFERENCE: *MFGC Student Manual*, pages 139-142, Using Market Fundamentals.

3a. Question: How can you use knowledge about the fundamentals of marketing to predict grain price trends?
(See *MFGC Student Workbook*, page 97, #3a.)

3b. Question: There are fundamental forces in the market that affect the ***demand*** for a given grain. Study current market information and identify the nature of each fundamental force affecting demand. Indicate its probable influence on price. Choose the grain(s) that you want to study.
(See *MFGC Student Workbook*, page 99, #3b.)

Provide your students with current market information and have them complete page 99 in the workbook.

3c. Question: There are fundamental forces in the market that affect the ***supply*** of a given grain. Study current market information and identify the nature of each fundamental force affecting supply. Indicate its probable influence on price.
(See *MFGC Student Workbook*, pages 100-101, #3c.)

Provide your students with current market information and have them complete pages 100-101 in the workbook.

3d. Question: There are ***other*** fundamental forces in the market that affect the price of grain. Study current market information and identify the nature of each fundamental force other than those of supply and demand. Indicate its probable influence on price.
(See *MFGC Student Workbook*, page 102, #3d.)

Provide your students with current market information and have them complete page 102 in the workbook.

3e. Question: In addition to the fundamentals of the market, what other information can you use to predict grain price trends?
(See *MFGC Student Workbook*, page 98, #3e.)

REFERENCE: *MFGC Student Manual*, page 143, Establishing Target Prices for your Grain.

Answer: The cash price offered by your elevator is a factor of futures prices and basis. Compare the current basis with the historic basis to determine its strength or weakness. Predict the direction in which the basis will move.

3f. Question: Using the information developed in items #3b, 3c and 3d concerning the effect of fundamental forces on grain prices, make your prediction of the trend of market prices from their present level.
(See *MFGC Student Workbook*, page 98, #3f.)

3g. Question: How does your prediction of market price trends compare with the forecasts of the experts quoted in market news services?
(See *MFGC Student Workbook*, page 98, #3g.)

4. Determining Cash Price from Futures Price and Basis

REFERENCE: *MFGC Student Manual*, page 143, Determining Cash Price from Futures Price and Basis.

In predicting grain prices for some future date, predicting futures prices (and whether the basis will strengthen or weaken) has been found to be more reliable than predicting cash prices. However, we need to be able to determine the predicted cash price for the time we plan to sell our grain. The information we have available is the futures price and the basis.

Situation: In November you are predicting your expected price for soybeans in March. The November local cash price for soybeans is $5.87 and the March soybean futures price is $6.34.
You predict that the March soybean futures price will be $6.50 in March and that the basis will strengthen to – $0.35.

4a. Question: What is the local basis in November?
(See *MFGC Student Workbook*, page 103, #4a.)

Local cash price	$5.87	
March futures	– 6.34	
Answer: Local basis	– $0.47	or 47 under

4b. Question: What will the predicted cash price be in March?
(See *MFGC Student Workbook*, page 103, #4b.)

March futures	$6.50
Basis	– 0.35
Answer: Gross cash price	$6.15

5. Effect of Futures Price and Basis on Cash Price

REFERENCE: *MFGC Student Manual*, pages 143-144, Effect of Futures Price and Basis on Cash Price.

When you set out to predict grain prices for a specific time in the future, you will be estimating the futures price and basis for that

specific time. From those estimates you can predict what direction you expect cash prices to move.

5a. Question: As you make your futures price estimate, the futures price will increase, decrease, or remain the same. As you estimate the basis, it will strengthen, weaken, or remain unchanged. What are the three cash price outcomes resulting from the possible combinations of futures price and basis estimates?
(See *MFGC Student Workbook*, page 103, #5a.)

Answer: The three outcomes are:
1. Cash price increases.
2. Cash price decreases.
3. Cash price remains unchanged.

5b. Question: Under what estimated futures price and basis movements will the cash price ***increase***?
(See *MFGC Student Workbook*, page 103, #5b.)

Visual 5-7 Cash Prices Increase When:
A. Futures price increases, basis unchanged
B. Futures price unchanged, basis strengthens

5c. Question: Under what estimated futures price and basis movements will the cash price ***decrease***?
(See *MFGC Student Workbook*, page 103, #5c.)

Visual 5-8 Cash Prices Decrease When:
A. Futures price decreases, basis unchanged
B. Futures price unchanged, basis weakens

5d. Question: Under what estimated futures price and basis movements will the cash price remain ***unchanged***?
(See *MFGC Student Workbook*, page 104, #5d.)

Visual 5-9 Cash Prices Are Unchanged When:
A. Futures price and basis are unchanged
B. Futures price increase is offset by similar weakening of basis
C. Futures price decrease is offset by similar strengthening of basis

5e. Exercise: In each of the following situations:
1) Determine the cash price outcome.
2) Indicate the futures price and basis movements that caused the cash price outcome.
(See *MFGC Student Workbook*, pages 104-105, #5e.)

Situation 1. Soybeans

November	
Soybean cash price	$5.32
March soybean futures	$5.52
Local basis	- $0.20
March	
Predicted cash price	$5.32
March futures	$5.72
Local basis	- $0.40

1) Cash price unchanged.
2) Futures price increase offset by weakening basis.

Situation 2. Corn

October	
Corn cash price	$1.82
March corn futures	$2.05
Local basis	- $0.23
March	
Predicted cash price	$1.69
March futures	$1.92
Local basis	- $0.23

1) Cash price decreases.
2) Futures price decreases, basis unchanged.

Situation 3. Wheat

June	
Wheat cash price	$2.98
September wheat futures	$3.27
Local basis	- $0.29
September	
Predicted cash price	$3.09
September futures	$3.27
Local basis	- $0.18

1) Cash price increases.
2) Basis strengthens, futures price unchanged.

Situation 4. Wheat

November

Wheat cash price	$3.24
July wheat futures	$3.40
Local basis	- $0.16

July

Predicted cash price	$3.13
July futures	$3.40
Local basis	- $0.27

1) Cash price decreases.
2) Basis weakens, futures price unchanged.

Situation 5. Soybeans

May

Soybean cash price	$6.02
September soybean futures	$6.53
Local basis	- $0.51

September

Predicted cash price	$6.02
September futures	$6.27
Local basis	- $0.25

1) Cash price unchanged.
2) Futures price decrease offset by similar strengthening of the basis.

Situation 6. Corn

April

Corn cash price	$1.85
September corn futures	$2.07
Local basis	- $0.22

September

Predicted cash price	$2.06
September futures	$2.28
Local basis	- $0.22

1) Cash price increased.
2) Futures price increases, basis unchanged.

6. Evaluating Production and Marketing Strategies

REFERENCE: *MFGC Student Manual*, page 144, Evaluating Production and Marketing Strategies Introduction.

6a. Question: What two major periods of risk do you have during the grain marketing season? (See *MFGC Student Workbook*, page 105, #6a.)

Answer:

* Producing the crop
* Marketing the crop

7. Production Decisions

REFERENCE: *MFGC Student Manual*, pages 144-145, Production Decisions.

7a. Question: One of the most important considerations when making crop production decisions is making a profit. After you have predicted the net price you expect to receive and compared it with your production costs, what are the possible outcomes concerning making a profit?
(See *MFGC Student Workbook*, page 105, #7a.)

Answer:

1) Make a profit
2) Break even
3) Lose money

7b. Question: After you have evaluated the prospects of profits that can be made with different crops, what possible results must you consider?
(See *MFGC Student Workbook*, page 106, #7b.)

Answer:

1. Each crop will make about the same profit.
2. Some crops will make more profit than others.
3. Some or all crops will do no more than break even.
4. Some crops will make a profit while others lose money.
5. All crops will lose money.

From this information you will decide:

* which crops to raise,
* how many acres of each, OR
* whether or not a certain grain crop or crops should be produced.

8. Marketing Decisions

REFERENCE: *MFGC Student Manual*, page 145, Marketing Decisions.

Your first marketing decision deals with which crops and how many acres of each to produce. You then decide how to market your grain after it is produced:– when the grain will be delivered and priced and when the title will be transferred.

Review *Visual 4-1*, Grain Selling Opportunities.

8a. Question: What are the two major factors influencing grain marketing decisions?
(See *MFGC Student Workbook*, page 106, #8a.)

* Seasonality of production and harvest.
* Seasonality of market information availability.

Grain Marketing Calendar

8b. Question: The grain marketing decision calendar can extend over a two-year period. Grain supply is influenced by the amount of both the old crop and the new crop. What are the four periods into which the two-year marketing calendar is divided? Which crop or crops (old or new) dominate the market during each period?
(See *MFGC Student Workbook*, page 106, #8b.)

Answer:
1. 1st marketing period
Visual 5-10 First Marketing Period
Disappearance of the old crop is the most important price-making factor.

2. 2nd marketing period
Visual 5-11 Second Marketing Period
Old crop supply and movement still influence price, but new crop prospects are most important.

3. 3rd marketing period
Visual 5-12 Third Marketing Period
Old crop carry-over important, but new crop dominates the market.

4. 4th marketing period
Visual 5-13 Fourth Marketing Period
New crop prospects begin to dominate the market.

8c. Exercise: Refer your students to *MFGC Student Manual*, pages 146-148, Figure 5-6, as a guide. Then have them construct a similar marketing calendar for soybeans or wheat.
(See *MFGC Student Workbook*, page 107, #8c.)

9. Making Pricing Decisions

REFERENCE: *MFGC Student Manual*, pages 145, 149-154, Making Pricing Decisions.

Visual 5-14 Making Pricing Decisions

In making marketing decisions, the expected change in basis must be estimated.

9a. Question: What are the reasons for estimating basis changes when making marketing decisions?
(See *MFGC Student Workbook*, page 107, #9a.)

REFERENCE: *MFGC Student Manual*, page 149.

10. Pricing Decision Chart

REFERENCE: *MFGC Student Manual*, pages 149-154, Pricing Decision Chart.

Visual 5-15 Crop Pricing Decision Chart

10a. Exercise: The crop pricing decision chart is divided into four quadrants. Describe the predicted market conditions for each quadrant. (See *Answer* at top of next page.)
(See *MFGC Student Workbook*, pages 108-109, #10a.)

10b. Exercise: Using the crop pricing decision chart as a guide, what marketing alternative(s) would you select for the following exercises? If your predictions prove correct, what will be your expected net price? (Marketing alternatives other than those recommended on the pricing chart may be used.)
(See MFGC *Student Workbook*, pages 109-113, #10b.)

Situation: On the date you are making your marketing decisions, the following wheat prices and charges are in effect:

Answer to #10a:

Upper right quadrant

Futures price:	Increases
Basis:	Weakens
Cash price:	Depending upon futures price and basis movements, the cash price may increase, decrease or remain the same.
Suggested marketing alternative:	A basis contract to take advantage of increase in futures price and offset basis weakness

Lower right quadrant

Futures price:	Decreases
Basis:	Weakens
Cash price:	Should decrease
Suggested marketing alternatives:	* Sell cash grain * Sell forward contract

Lower left quadrant

Futures price:	Decreases
Basis:	Strengthens
Cash price:	Cannot be predicted
Suggested marketing alternatives:	* Hedge - strengthening basis must be enough to cover carrying charges * Buy put option

Upper left quadrant

Futures price:	Increases
Basis:	Strengthens
Cash price:	Expected to increase
Suggested marketing alternatives:	* Store grain and sell later * Sell through delayed price contract

#10b. *(continued)*

Cash price wheat at local elevator	$3.11
Futures price	3.61
Local basis	- $0.50

Charges and credits to be used when they apply to the given marketing alternative:

Storage when used	$0.25 per bu
Brokerage fees and interest when hedging	0.03 per bu
Options trading costs	0.04 per bu
Forward contract - sell for	3.26 per bu
Elevator fee for delayed price contract	0.30 per bu

Exercise 1 (See *MFGC Student Workbook*, page 110.)

Your predictions:

Futures price decreases to	$3.36
Basis weakens to	- 0.75
Expected local cash price	$2.61

Quadrant to refer to: lower right

Your selected marketing alternatives:

1) Sell cash grain.
   Cash price is $3.11. Since there are no storage or other charges, this is also the net price.

2) Sell forward contract.

Forward contract for selling wheat at	$3.26
Storage costs	- 0.25
Net price	$3.01

Exercise 2 (See *MFGC Student Workbook*, page 111.)

Your predictions:

Futures price increases to	$3.85
Basis strengthens to	- 0.27
Expected local cash price	$3.58

Exercise 2 *(continued):*
Quadrant to refer to: upper left

Your selected marketing alternatives:

1) Store grain - sell later

Futures price increases to	$3.85
Basis strengthens to	- 0.27
Expected local cash price	$3.58
Storage costs	- 0.25
Expected net price	$3.33

2) Delayed price contract

Futures price increases to	$3.85
Basis strengthens to	- 0.27
Expected gross price	$3.58
Delayed price contract charge	- 0.30
Expected net price	$3.28

Exercise 3 (See *MFGC Student Workbook*, page 112.)

Your predictions:

Futures price increases to	$3.82
Basis weakens to	- 0.73
Expected local cash price	$3.09

Quadrant to refer to: upper right

Your selected marketing alternative:

* Basis contract - to fix basis and speculate on the expected futures price

Futures price increases to	$3.82
Established basis	- 0.50
Net price (no fee charged)	$3.32

Exercise 4 (See *MFGC Student Workbook*, page 113.)

Your predictions:

Futures price decreases to	$3.38
Basis strengthens to	- 0.26
Expected local cash price	$3.12

Quadrant to refer to: lower left

Your selected marketing alternatives (for Exercise 4):

1) HEDGING

Cash		**Futures**		**Basis**
Date hedge placed				
Cash price	$3.11	Sell futures contract	$3.61	- $0.50
Date hedge lifted				
Cash price	$3.12	Buy futures contract	$3.38	- $0.26
Gain	$0.01	Gain	$0.23	Gain $0.24

Cash price local elevator	$3.12
Gain in futures	+ 0.23
Expected gross price	$3.35
Brokerage and interest	- 0.03
Expected net price	$3.32

2) PUT OPTION

Date	**Option**	**Underlying Futures**	**Premium**	**Basis**
Grain stored Cash price $3.11	Buy put option Strike price $3.60	$3.61	$0.15 in the money	- $0.50
Sell cash grain $3.12	Sell put option	$3.38	$3.60 - $3.38 $0.22	- $0.26
		Gain in premium $0.07	Gain	+ $0.24

(continued)

Exercise 4 *(continued):*

Cash price	$3.12
Gain in premium	+ 0.07
Expected gross price	$3.19
Trading cost	- 0.04
Expected net price	$3.15

In the previous four exercises, one for each quadrant of the pricing chart, only one combination of futures price and basis change was used for each situation. Each example assumed that the predicted change in futures price and basis proved to be correct. While we can hope that the predicted price changes will be close to the actual prices, predictions are seldom perfect.

11. Recording Sales Transactions

REFERENCE: *MFGC Student Manual*, page 154, Recording Sales Transactions.

Visual 5-16 Record of Grain Sales

11a. Question: What can you do specifically to profit from your good and bad marketing decisions?
(See *MFGC Student Workbook*, page 114, #11a.)

Answer:
Keep a record of your grain sales and record why you made each sale.

Analyze your past sales transactions.

Remember that sometimes a good decision may become a bad decision because the information you acted upon changed over time. Bad sales can result due to situations beyond your control.

Also, some of your best sales results may have been due to favorable information changes rather than to your good judgment.

Your sales record should be kept in addition to your record of the historic basis. The two used together can help you make more accurate price predictions.

Developing a Written Marketing Plan

REFERENCE: *MFGC Student Manual*, page 154, Developing a Written Marketing Plan Introduction.

Marketing Farm Grain Crops Student Manual first presents a broad overall view of the fundamentals of marketing grain. Next, the various procedures farmers may use in marketing their grain are described in piecemeal fashion. Each marketing procedure-storage, transportation, grading, pricing - and marketing alternatives are discussed in detail with only limited references as to how they are related to the total grain marketing problem.

The development of a grain marketing plan enables you to guide your students in seeing the relationship of each individual part of the grain marketing procedure to the whole problem of marketing their grain.

The time during the two-year period of the marketing season that your students start their marketing plan will determine their approach to developing their plan. The periods start with pre-planting plans, planting, growing, harvesting and storage. Different kinds of marketing information are available during each of the periods.

Students who are serious about marketing their grain in the most effective way should be encouraged to develop a grain marketing notebook. The notebook should include all the information required for making sound grain marketing decisions. *Marketing Farm Grain Crops Student Workbook* contains several forms that can be reproduced and used by the students in maintaining their grain marketing records.

12. Farm Records

REFERENCES: (All references listed below are available from the Ohio Agricultural Education Curriculum Materials Service, 2120 Fyffe Road, Room 254, Columbus, Ohio 43210.)

Marketing Farm Grain Crops Student Manual, pages 154-161, Farm Records
Plant Enterprise Record Book
Analysis of General Farm Crops - Grain

(continued)

Teacher Guide for Vocational Agriculture Record Keeping System
Ohio Crop Enterprise Budgets - Grain, published by Ohio Cooperative Extension Service
The Ohio Commercial Farm Account Book, published by Ohio Cooperative Extension Service

The following figures from *Marketing Farm Grain Crops Student Manual* should be duplicated and made available to students for their record keeping:

Figure 5-7, Pricing Decision Chart on Crops
Figure 5-8, Record of Grain Sales
Figure 5-9, Weekly Basis Chart
Also *MFGC Student Workbook*, pages 98-101, Fundamental Forces Affecting the Grain Market

12a. Question: What farm records should you have available when preparing your grain marketing plan?
(See *MFGC Student Workbook*, page 114, #12a.)

Answer:

1) Vocational agriculture student occupational experience records or commercial farm account records.

   These records should show:
   * the cost per bushel for producing grain crops
   * the cost of on-farm and off-farm storage of grain
   * the cropping plan
     - acres of each crop planted
     - yield of each crop
     - total production of each crop
   * personal living needs and goals
   * farm business cash flow needs

2) Weekly basis chart from which the historic basis for your local market(s) can be determined.

3) Record of Grain Sales which is a running record of each grain sale transaction.

13. Market News Reports

In making pricing predictions, the student must have access to market news reports. The information may come from one or more or all of the following sources:

* Government reports
  - State - University and State Dept. Reports of Agriculture
  - Federal - Reports of Agriculture
* Commercial reports
* Computer service reports

(See *Marketing Farm Grain Crops Student Manual*, Chapter 1 for Partial Listing of Grain Marketing Information Sources, pages 8-11.)

Help your students develop an orderly filing system for their market news information.

13a. Question: As you approach the task of making grain price predictions, what kind of market news information will you need?
(See *MFGC Student Workbook*, page 114, #13a.)

Answer:

* Statistical reports:
  Planting intentions
  Acres planted
  Growing conditions - expected yields
  Acres harvested and yield
  Total production
  Domestic grain use and carry-over
  Livestock on feed

* Situation and outlook reports for all commodities and other agricultural economic information

* Situation and outlook reports for foreign agricultural grain and soybean production

* General level of economy
  employment level
  disposable income
  gross national product

14. Determining Appropriate Grain Marketing Time(s) and Appropriate Marketing Alternative(s)

Your students should now be ready to practice the art of pricing and selling their grain. The form, Determining Appropriate Grain Marketing Time(s) and Appropriate Marketing Alternative(s), has been developed to guide your students through the various procedures required to price and sell their grain. (See *MFGC Student Workbook*, pages 119-125.)

Using this form, the students can:

* identify their current grain ownership situation
* determine current prices
* determine marketing costs
* assess fundamentals of marketing information
* identify past grain marketing trends
* make predictions concerning basis and futures price movements
* select appropriate grain marketing alternative(s)
* determine estimate of net prices for their grain
* decide which grain marketing alternative(s) to use

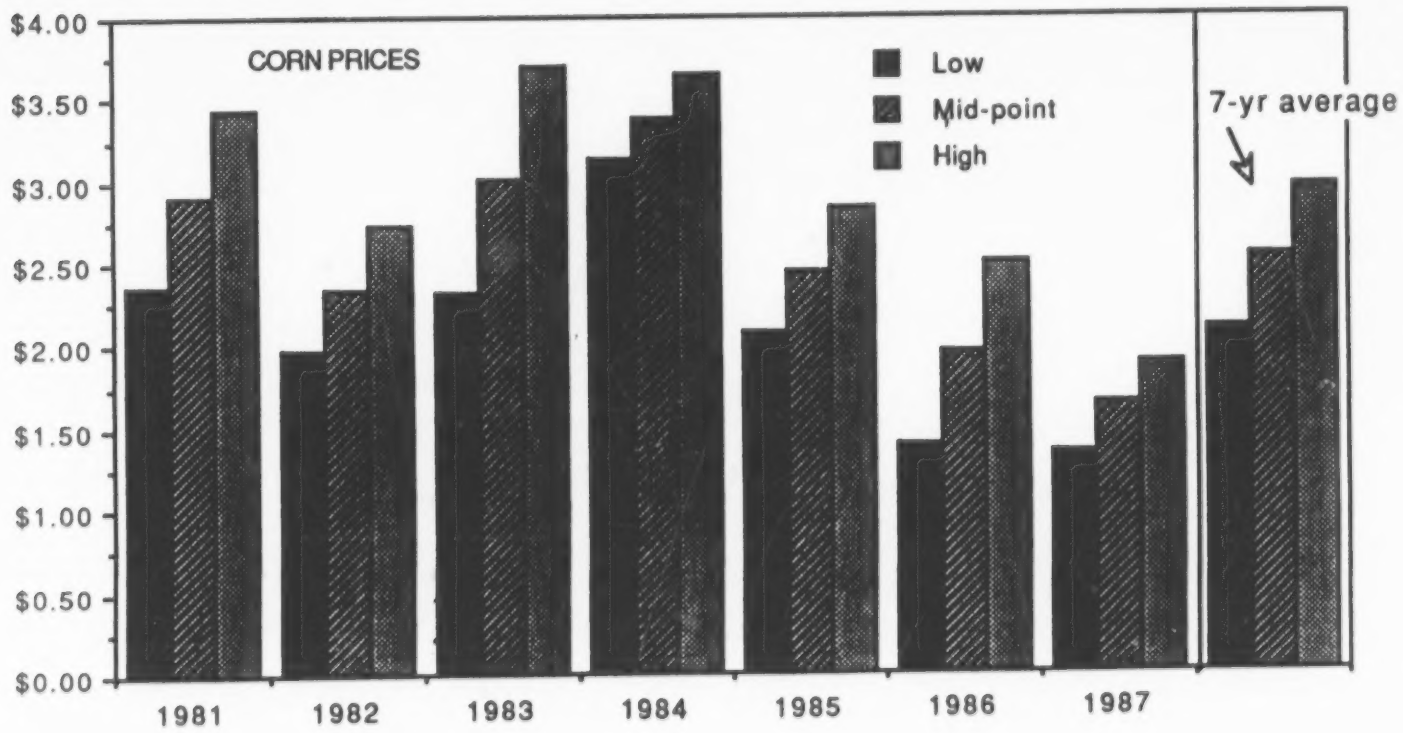
Your students may refer to specific parts of *Marketing Farm Grain Crops Student Manual* for help in working through the form. The procedures given in the form are the same as the examples given in the manual.

The form could be made a part of the students' grain marketing notebook.

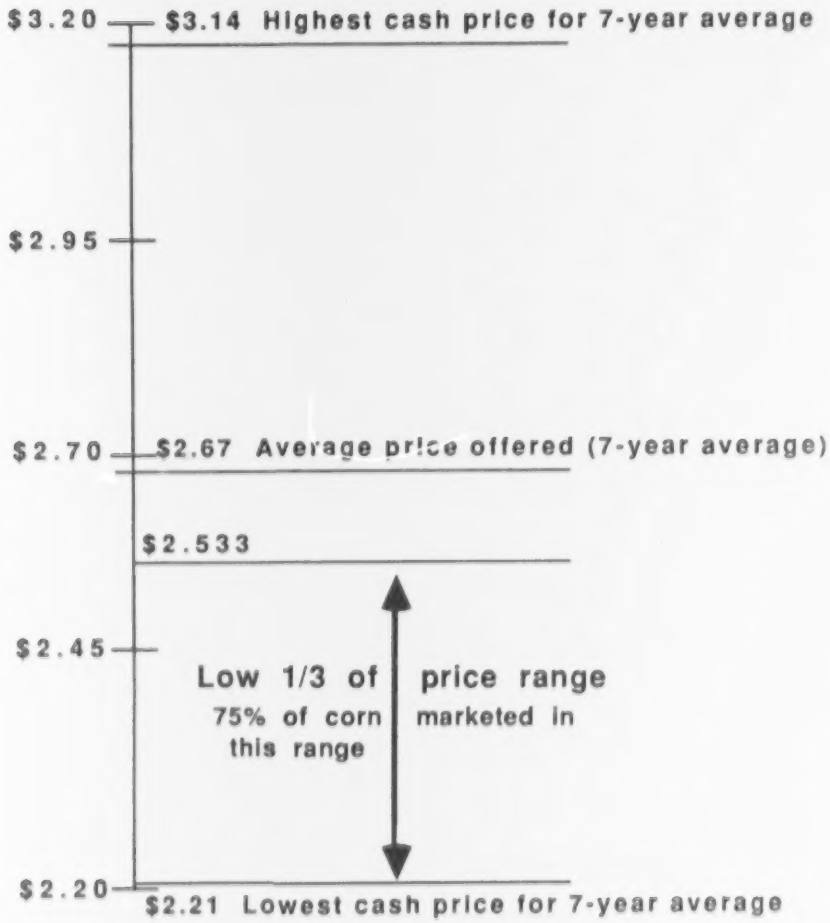
14a. Conclusion: Give the marketing alternative(s) you have chosen to use. Identify the time period during the two-year marketing season you have taken action. Tell why you made these decisions.
(See *MFGC Student Workbook*, page 115, #14a.)

This question can be answered only after the students have worked their way through the form and made their decisions. Working through the form should be an excellent review of *Marketing Farm Grain Crops Student Manual*.

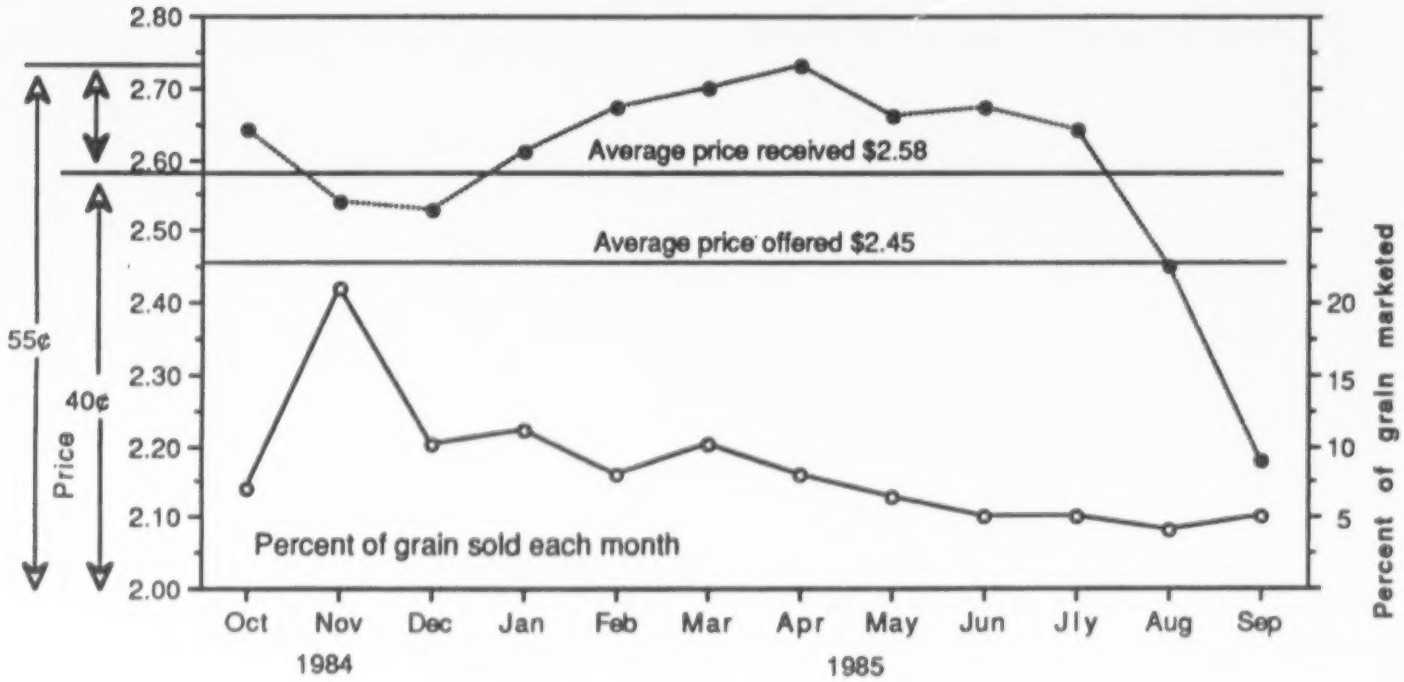
TOLEDO, OHIO CASH CORN PRICES, 7-YEAR AVERAGE



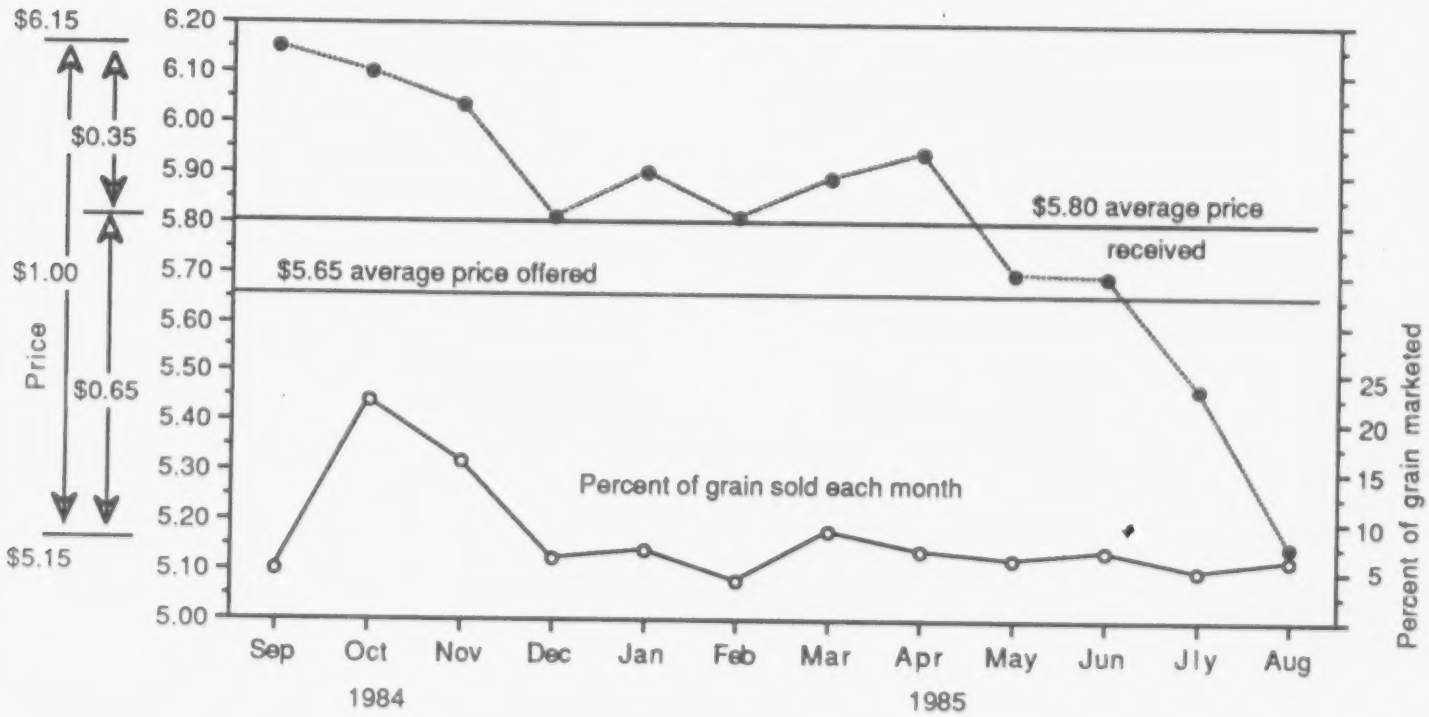
AT WHAT PRICE RANGE DO YOU SELL YOUR GRAIN?



OHIO MONTHLY CASH CORN PRICES



OHIO MONTHLY CASH SOYBEAN PRICES



STEPS IN ESTABLISHING REALISTIC GRAIN MARKETING GOALS

1. Establish realistic farm business goals.

2. Know production costs.

3. Know storage costs when grain is to be stored.

4. Know current fundamental marketing factors and their effect on price trends.

5. Make short- and long-term predictions of grain price trends.

6. Establish your grain price goals.

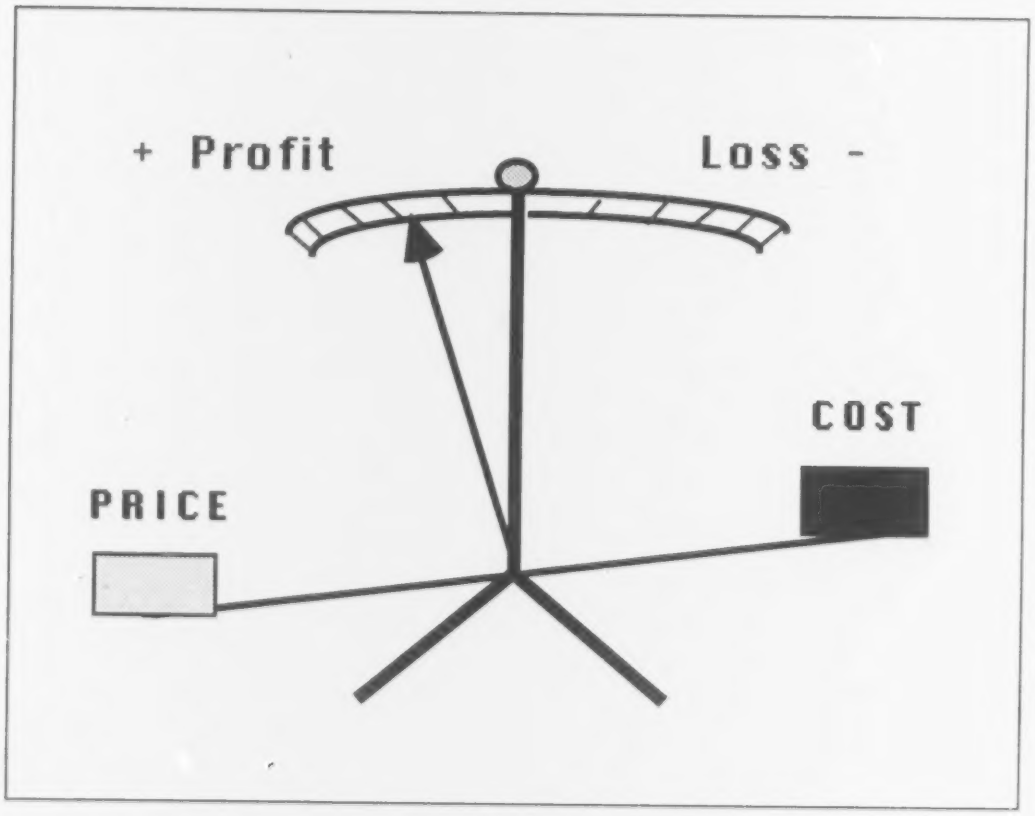
7. Evaluate your production and marketing strategies:

   - which crops and how many acres to produce.
   - which marketing alternatives will best enable you to reach your target prices.

8. Develop marketing plan that will enable you to achieve your business goals.

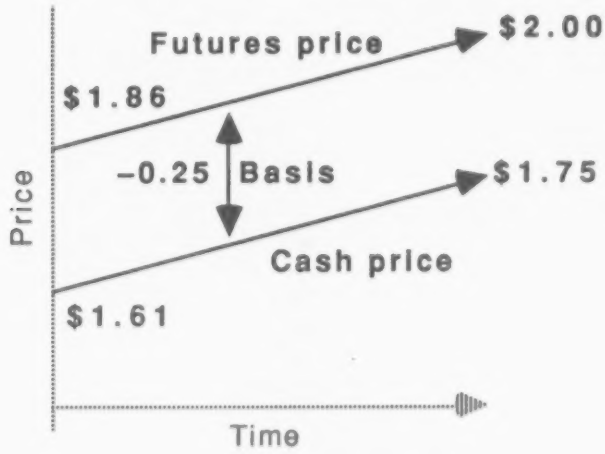
9. Change your marketing plan as new information becomes available.

PRODUCTION + MARKETING = PROFIT (OR LOSS)

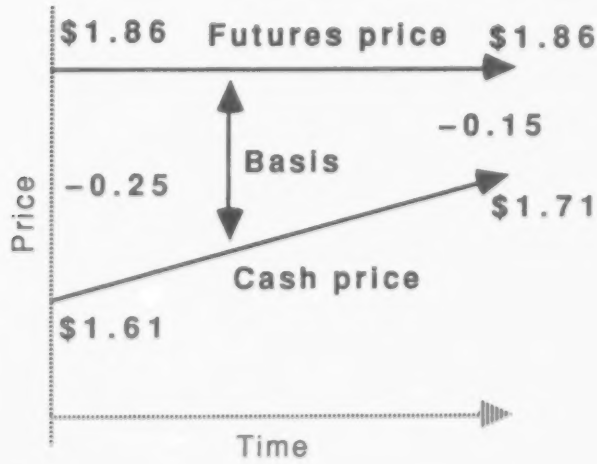


1. CASH PRICES INCREASE WHEN:

A. Futures price increases, basis unchanged

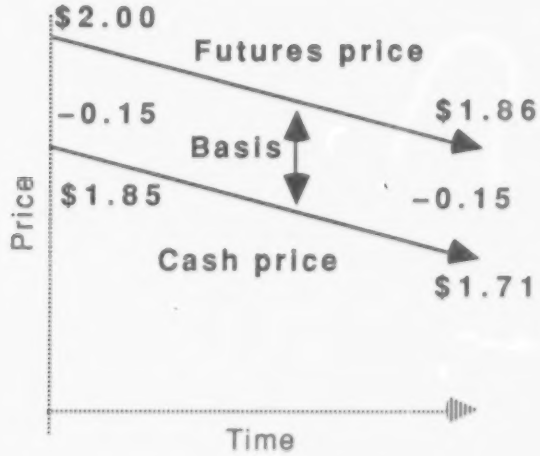


B. Futures price unchanged, basis strengthens

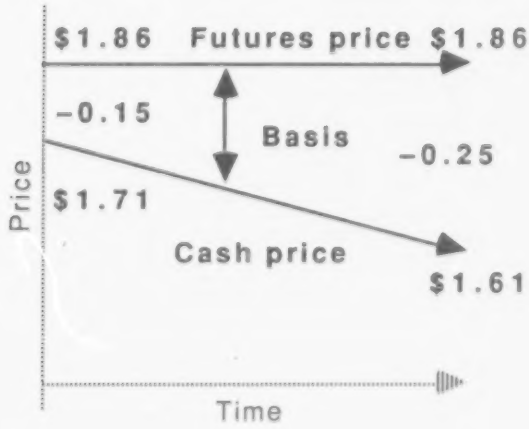


2. CASH PRICES DECREASE WHEN:

A. Futures price decreases, basis unchanged

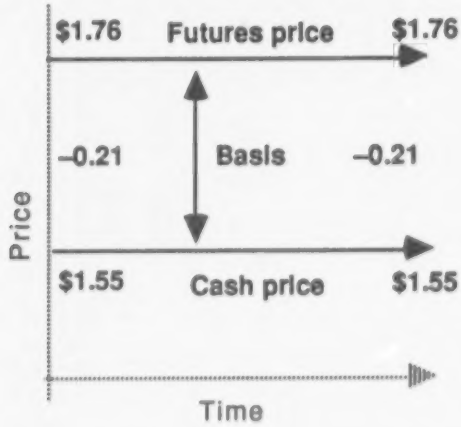


B. Futures price unchanged, basis weakens

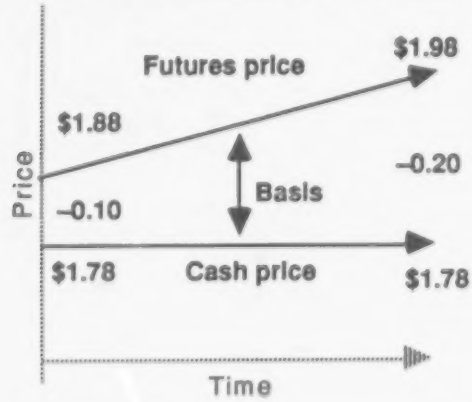


3. CASH PRICES ARE UNCHANGED WHEN:

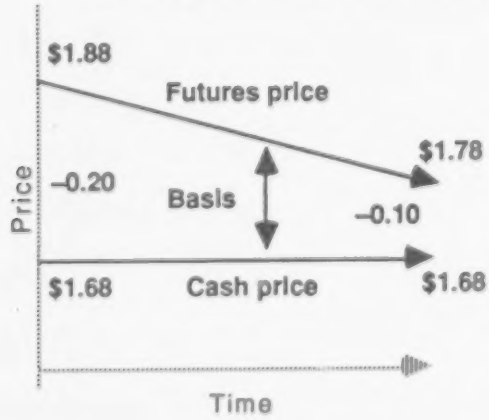
A. Futures price and basis unchanged



B. Futures price increase offset by similar weakening of basis



C. Futures price decrease offset by similar strengthening of basis



CORN MARKETING DECISION CALENDAR - 1989 CROP

First Marketing Period

First marketing period: Old crop disappearance is . . . .

Sept. '88	Oct. '88	Nov. '88	Dec. '88

First decision point is the time of making cropping plans.

After harvest, crop planning continues.

Seed orders placed. Purchase and application of fertilizer.

December corn futures on board by last of September.

. . . the most important price making factor

Jan. '89	Feb. '89	Mar. '89

Market reports available:

Final crop production ('88 crop) estimates.

Grain stocks (carryover)

Re-evaluate old-crop supply and disappearance.

Planting intentions ('89 crop)

Evaluate new crop prospects.
How much of the crop should be sold at harvest and at what estimated price?

CORN MARKETING DECISION CALENDAR - 1989 CROP

Second Marketing Period

Second marketing period: Old crops still influence price.

April '89	May '89	June '89

Planting time.

Planting intentions report revised and updated.

April 1 grain stocks report.

Measures old crop situation and its impact on new crop prices.

Planting time continued.
(Late planting causes yield reduction.)

New crop prospects are most important.

July '89	Aug. '89	Sept '89

Weather important factor in markets.

USDA crop production estimates.

Make your forecast as to whether next year's prices will be higher or lower than current prices.
Decide how much corn to price before harvest.

U.S.D.A makes monthly estimates of corn and soybean crop prospects.

Production prospects dominate prices.
Modify preharvest pricing decisions.
As harvest approaches, make sales decisions for remainder of year:

- How much to store
- How much to price
- How much to delay price

CORN MARKETING DECISION CALENDAR - 1989 CROP

Third Marketing Period

Third marketing period: Old crop carryover important, . .

Oct. '89	Nov. '89	Dec. '89

HARVEST STARTS.

. . but new crop dominates the market.

Jan. '90	Feb. '90	Mar. '90

Market reports available:

Final crop production ('89 crop) estimates.
Grain stocks (carryover).
Planting intentions ('90 crop).

After these reports are released, determine how much corn to take into remainder of period.

Before spring field work, decide how much corn to take into critical spring and summer weather.

CORN MARKETING DECISION CALENDAR - 1989 CROP

Fourth Marketing Period

Fourth marketing period: New crop prospects begin to dominate the market.

April '90	May '90	June '90	July '90

PLANTING TIME

By the time new crop is planted, plans for selling remainder of crop should be made.

Aug. '90	Sept. '90	Oct '90

Remains of '89 crop moved out to make room for '90 crop.

HARVEST

MAKING PRICING DECISIONS

In making marketing decisions
the expected change in basis
must be estimated.

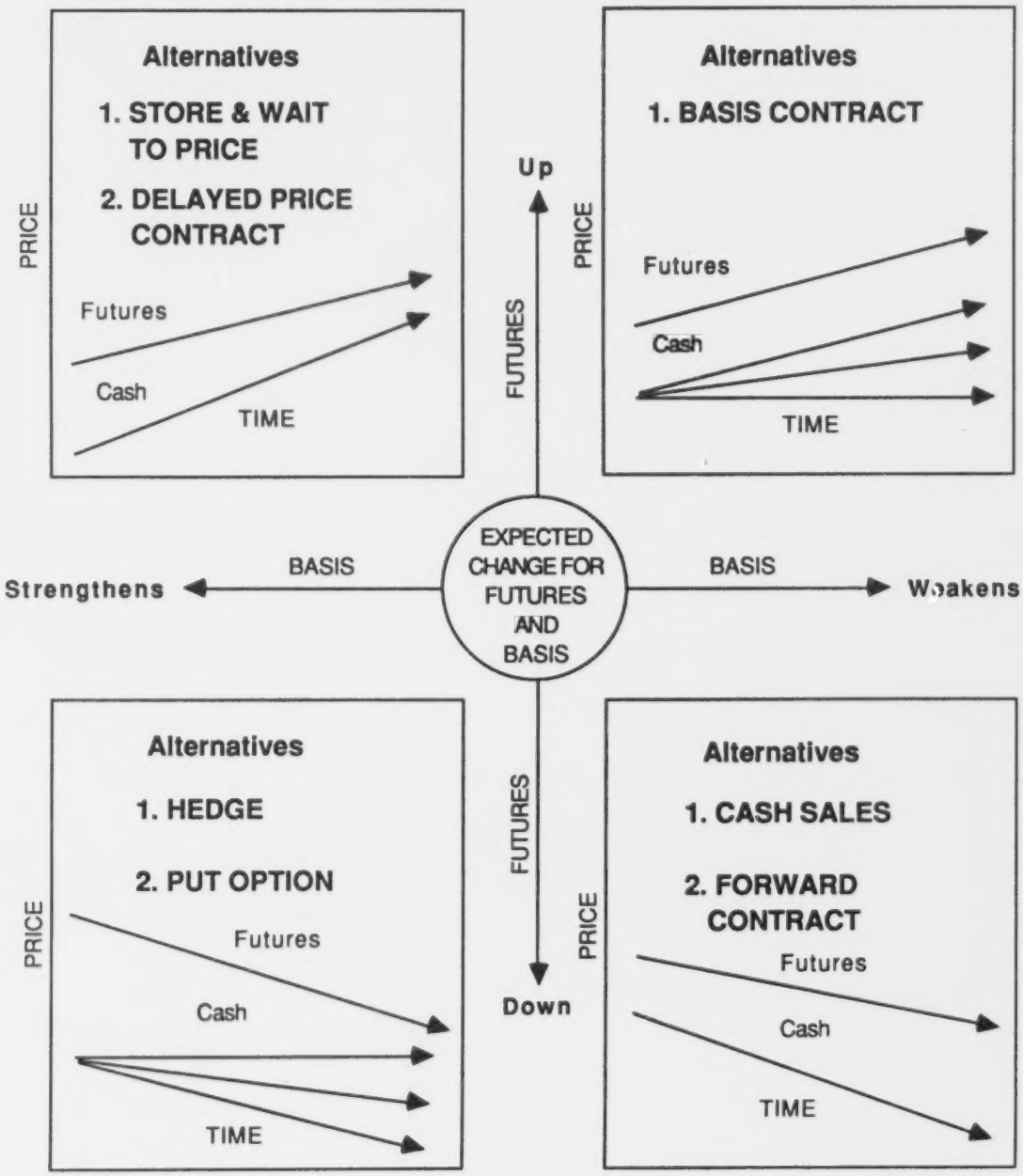
1. Expected change in basis is more predictable than expected change in price.

2. Basis must be estimated to localize futures prices.

3. Basis must be estimated to evaluate all marketing alternatives.

4. Basis must be estimated as part of decision to store or not to store grain.

CROP PRICING DECISION CHART



RECORD OF GRAIN SALES

Grain _____ Marketing period _____ Bushels to be sold _____

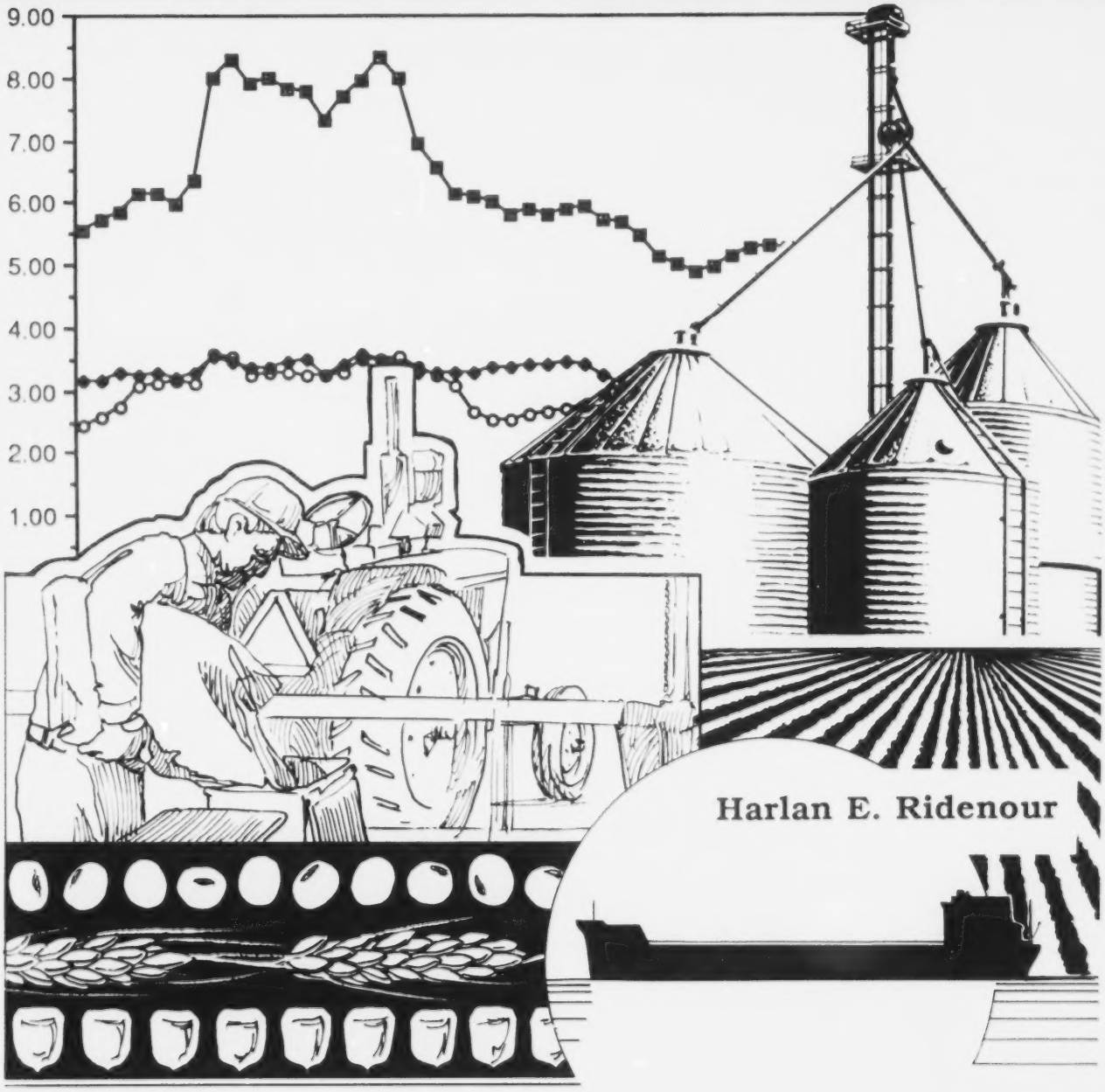
Production cost/bu. _____ Break-even price _____ Target price _____

Date	Marketing Alternative	Place of Contract-Elevator, Broker	Bushels sold	Delivery month	Delivery date	Percent sold	Bushels remaining	Expected Net Price	Net Price Received	Reason for Making Sale

MARKETING

FARM GRAIN CROPS

STUDENT MANUAL



Harlan E. Ridenour

OHIO AGRICULTURAL EDUCATION CURRICULUM MATERIALS SERVICE

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The Ohio State University

MARKETING FARM GRAIN CROPS

Student Manual

Harlan E. Ridenour

Consultant in Educational Designing
Vocational Education in Agriculture

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Foreword

Marketing Farm Grain Crops is designed to give students of grain marketing a thorough background of the subject and provide practical help in developing grain marketing strategies for their own corn, soybean and wheat crops. This work is in three parts: this ***Student Manual;*** a ***Teacher Guide,*** which gives the teacher further guidance in teaching the material and provides 90 transparency masters; and the ***Student Workbook,*** which provides space for answering questions on the material as well as completing exercises. All three are cross referenced for easy location of subject matter. This work, researched and authored by Dr. Harlan E. Ridenour, Consultant in Educational Designing, Vocational Agriculture, replaces *Grain Marketing Student Manual* and *Teacher Supplement.* Current information on the following topics is included: marketing functions and routes; supply and demand; fundamental forces causing price changes; grain delivery, grading and storage; futures, basis, hedging and options; and grain production and marketing plan development.

CHAPTER 1

FUNDAMENTALS OF GRAIN MARKETING

To the Student

As a student in vocational agriculture, you may find that your farming program includes crops of corn, soybeans or wheat. You will select the varieties to plant and the cultural practices to follow to produce a high-yielding, quality crop. Before you produce this crop, stop to consider how you will market your grain. Will you receive the greatest possible return for your labor, management and capital investments? Many producers give little thought to this important part of crop production. This grain marketing manual is designed to help you develop a grain marketing plan for each of your crops. It will enable you to sell your product at the best price available. After studying this manual you should be able to do the following:

1. Determine the potential profit of your crop by studying the outlook reports from the USDA (United States Department of Agriculture) and Cooperative Extension Service, Doane reports, and farm magazines. These give information on the projected need for specific crops.

2. Select your crop and land and complete the budget* in your crop production record book to determine the projected cost of production. (As a guide, use the current *Ohio Crop Budgets for Grain*, Department of Agricultural Economics and Rural Sociology, The Ohio State University.)

3. Describe the role and different functions of marketing.

4. Explain why market prices vary within a season and from one season to the next.

5. Trace the flow of grain from your farm to its final destination.

6. Interpret newspaper, radio, television, and computer market information reports for your crop(s) to help you make marketing decisions.

7. Define grain grading standards and determine how they are used to establish the marketing quality of grain.

8. Interpret grain marketing discount sheets available from local grain marketing facilities. Determine the net cash price received after all discounts are applied.

9. Be familiar with local grain marketing facilities offering different discount procedures and rates. Determine which facility would give the highest net cash price after all discounts and marketing costs have been considered.

10. Produce a quality product and keep market discounts to a minimum by following approved production, harvesting, and storage practices (presented in other units of instruction).

11. Interpret weight slips, discount sheets, shrinkage charts, and other grain marketing and contract papers used during your marketing transaction.

12. Determine the local basis for your grain.

13. Describe the following grain marketing alternatives and give the advantages and disadvantages of each. Identify the time when ownership of the grain is transferred from you (the seller) to the grain marketing company (the buyer).

    A. Cash market

        1) Cash sale at harvest

        2) Store, set price, and deliver at a later date
            a. Hold grain in farm storage
            b. Store grain at commercial elevator, receive warehouse receipt, and sell at a later date.

*It is assumed that budgeting has already been taught, and so will not be covered here.

B. Forward pricing

1) Cash forward contract

2) Hedging in futures

3) Commodity options

C. Delayed price

D. Basis contract

E. Government program

F. Feed for livestock

14. For each of the previously listed grain marketing alternatives, determine the effect each would have on the price offered for your grain.

15. Develop a marketing plan for grain using your situation, marketing data, and prices that would give you the maximum returns from the sale of your grain. List the reasons for selecting this marketing alternative.

DEFINITION OF MARKETING

A market can be defined as a time and place with the necessary conditions for trading between a seller and a buyer. A price is agreed upon and ownership of the product is transferred from the seller to the buyer. In order to determine a fair price, each party must be familiar with the supply and demand for the product and the price established by similar markets.

A market may be simple or complex. A meeting between neighbors over a feedlot fence may result in the purchase of feed corn. A computerized marketing network is an example of a more complex market. The buyer and the seller both have access to the network and make their deals through the computer. The sellers describe the amount and quality of their grain and, after seeing what is available, the buyers make their bids. These bids are either accepted or rejected through the computer network. Another example of a market is the negotiation of a grain sale over the telephone. Buyers and sellers may be involved in a board of trade. Here they meet with many other buyers and sellers in a structure called a *pit* for the purpose of buying and selling grain.

These examples give a simplified picture of a market. The actual transactions are much more sophisticated. One of the characteristics of a successful market is good communication between buyers and sellers. It is easy for two brokers at a board of trade to close a deal. The neighbors at the feedlot fence will have no problem communicating. But it is a different story for buyers and sellers miles apart. They must depend on the telephone or other communication devices. These lesson units will help you trade effectively in today's complex markets.

ROLE OF MARKETING

As a grain producer, you have several alternatives when selling your grain. You do not have to accept the offered cash price. In order to compensate for your efforts and expense you must receive the highest returns possible, but these returns depend on how your crop is marketed. Marketing implies an organized, well-planned system of disposing of the product, not just selling the crop. Even the simple act of selling corn to your neighbor for cattle feed should involve careful planning. In order to receive a fair price, compare the price offered by your neighbor with the price you would receive from other market outlets. In addition, consider the costs of moving your grain through the various outlets.

Usually, receiving the greatest net return from your crop will be your idea of successful marketing. At other times you may be willing to take less for your crop because specific marketing times and procedures may:

- reduce your income taxes.
- make better use of labor on the farm.
- build or keep a credit rating.

You must evaluate your particular situation and set your own goals.

Demand for the product, marketing location, and time of marketing are some of the factors that influence the sale of a crop. Some farmers use a system of marketing that guarantees them an agreed-upon market price. This price may be negotiated before the crop is planted, during the growing season, or at harvest. Generally, this procedure is used to secure the costs of production plus a profit for the farmer.

If you want to expand your operation to make a greater profit, you must improve your marketing procedures. As your marketing skills develop, your overall production can grow.

MARKETING FUNCTIONS

The term **marketing functions** is used to describe the changes a product goes through from the time it is produced until it reaches the consumer. These marketing functions are interrelated as indicated in Figure 1-1. Not all of these functions are used for every product produced. As each function is explained, they will be applied to you in your role as a grain producer.

The grain marketing process begins when the farmer decides which crops to plant and the number of acres to use. The process ends when the product reaches the consumer's table or becomes a part of a manufactured product. After the product leaves the farmer's gate, the following marketing functions become involved.

Selling and Buying

Grain buyers purchase grain from widely scattered sellers (producers) and store it in their elevators until it is distributed through the marketing channels. Buying and selling may take place in various forms and locations before the final sale is made to the consumer. Our main concern in grain marketing is the **selling and buying** transaction between the producers (farmers) and the marketing outlet that moves the grain. This may involve a country elevator, a subterminal or terminal elevator, or an exporter. Or the grain may go directly to a processor. Processors prepare grain for human or livestock consumption or for industrial use. There are several kinds of contracts you can choose to sell your grain. To protect yourself you must know when transfer of title to the grain actually takes place.

Grading and Standardizing

Sorting goods into lots which are about the same type, size and quality is called **grading and standardizing.** This prepares the product

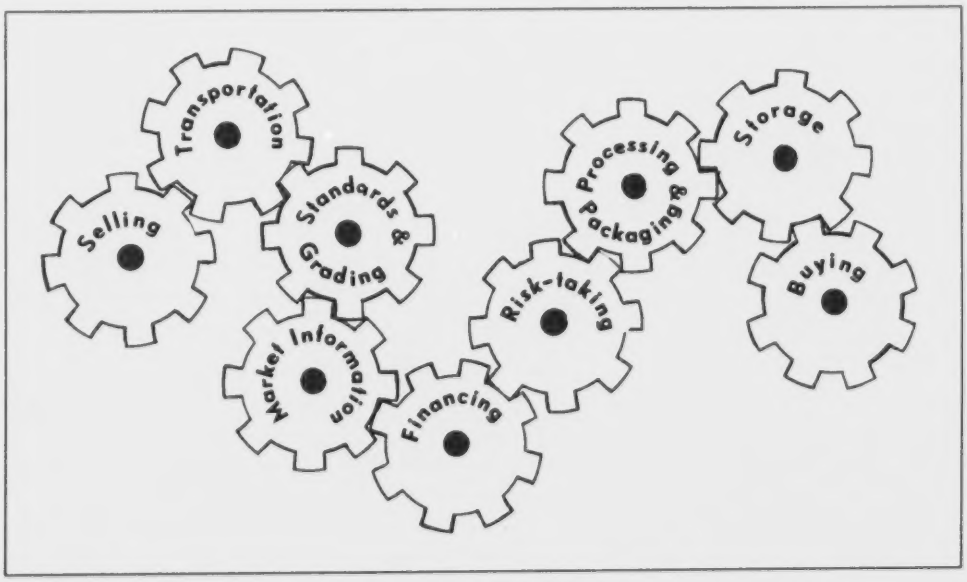


Figure 1-1 Marketing functions are related in the movement of products from producer to consumer.

for the demand of the market and improves communication between the buyer and the seller concerning the quality and condition of the grain. It also helps establish prices for products with similar qualities and characteristics. Each of the grains has a standard weight, moisture content and amount of damaged or foreign material which is accepted without discounts.

The use of accepted standards and grades for a product allows transactions to be made without the product being present or inspected at the market place. This greatly increases the efficiency of the market and provides an accurate language for price quotations. Grain standards and grades will be discussed in more detail in a later section.

Transportation

Transportation is closely related to assembly and storage. It is the moving of grain from one point to another in the marketing process. Initially the farmer chooses the marketing outlet and transports the grain in a farm-owned truck. These farm-owned trucks are the most common method of transportation. Many of them are capable of hauling large quantities of grain to distant locations. This allows the farmer to choose from a wide range of markets. However, increased costs of transportation from hauling grain long distances must be considered when figuring the net price. After the grain reaches the market, the initial and subsequent buyers must assume responsibility for transporting the grain. After initial purchase of the grain, trucks may still be used for transportation. In addition, railroads with special hopper cars or unit trains and river barges may be used. Exported grain is transported by ship unless shipment is being made to an adjoining country. (See Figure 1-2.)

Processing

Processing is a series of steps that prepares the product for use by the consumer. For example, wheat is made into bread, grain becomes cereal or pasta, and soybeans are changed to oil and meal. Consumers demand more highly processed food products because they require little preparation before serving. Cake mixes are a good example. Extra processing increases marketing costs but makes the product more acceptable to the consumer. Grain processing plants are usually located in production areas or on transportation routes so the finished product can be easily moved to the consumer.

Packaging

Placing the product in a salable, attractive, convenient and easy-to-handle container is the **packaging** of the product. This is done primarily for the convenience of the consumer.

The smaller families today demand that their food be packaged in small, convenient portions. While such packaging increases the cost of food, it also increases sales.

Storage

Storage refers to holding grain in a facility until needed. This is an especially important factor with grain because the entire crop is available during a short harvesting season. Storage enables the grain to be released to the market throughout the entire year. Although grain prices are usually lower during the harvesting season, storage tends to make the prices more uniform during the year. Storage may be on the farm; in local, subterminal or terminal elevators; or with the processor (Figure 1-3).

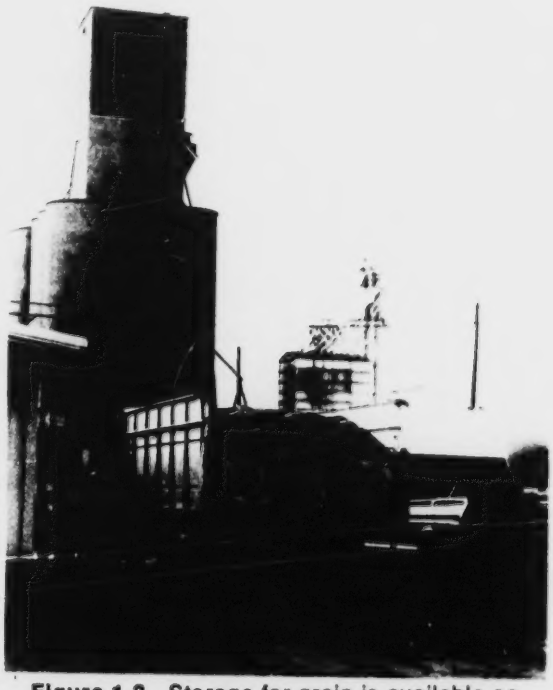
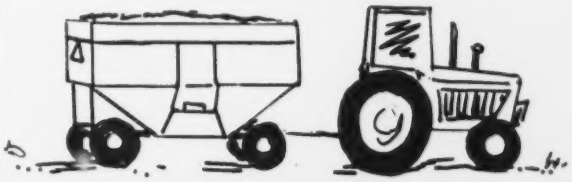
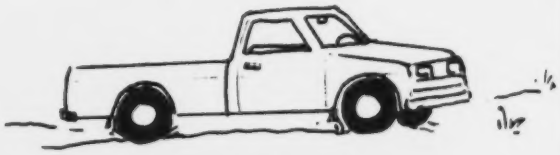


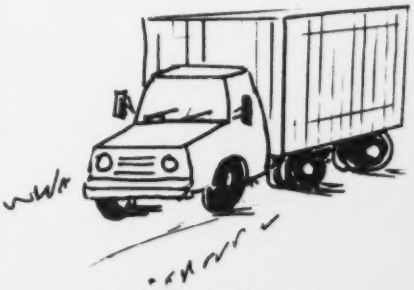
Figure 1-3 Storage for grain is available on farms and at each step of the marketing process.



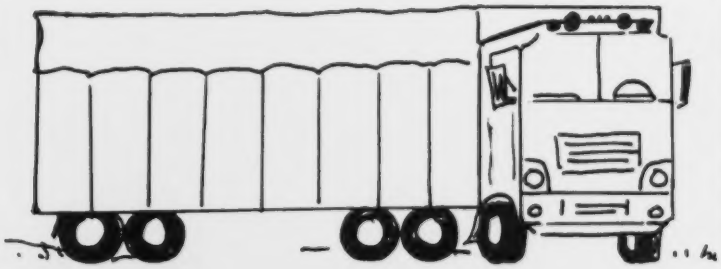
Tractor-drawn hopper wagon



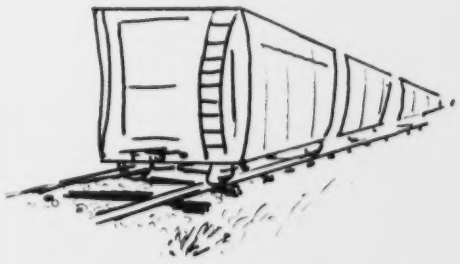
Pickup truck



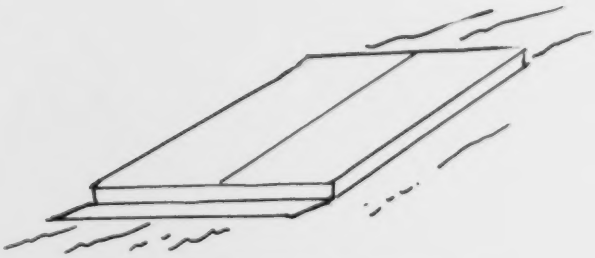
10-wheel semi truck



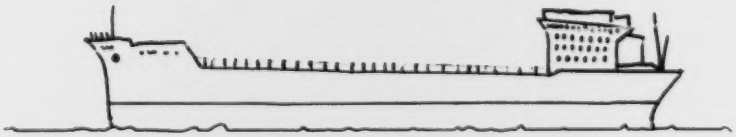
Large grain-hauling semi trailer truck used by elevators



Railroad hopper cars used singly
or as unit trains



River barge loaded at river port elevator



Ocean-going ship loaded at exporting elevator

Figure 1-2 METHODS OF TRANSPORTING GRAIN

Improved production practices as well as government programs and regulations have increased the need for storage facilities. When grain production exceeds demand, the surplus must be stored until needed or disposed of by other means. Storage costs also increase the cost of moving grain from the producer to the consumer.

Financing

Financing provides capital at all levels of marketing. The grain is owned and financed by a particular party using its own capital or borrowing funds and then paying interest on them. Someone finances the grain ownership as the marketing functions are performed. The grain may be self-financed by its owner. More often financing is done by individuals or agencies such as commercial banks, savings banks, cooperative credit associations, or insurance companies.

Charges and terms for financing vary widely and are important marketing costs. In addition to interest rates, inspection services, insurance fees, service charges, and provisions for repayment are all involved in financing costs. In turn, these will affect marketing margins. Obviously, financing considerations cannot be avoided.

Risk Bearing

Bearing the risk of possible loss is necessary in any business enterprise. Risks are present in both production *and* marketing of agricultural products. These risks can be grouped into the following areas:

1. *Natural factors* - fire, wind, earthquake, disease

2. *Lack of dependability* (a human factor)- carelessness, indifference, dishonesty

3. *Market risks* - uncertainties which always exist in connection with prices, costs and sales volume

Either producers or marketers of agricultural products may choose to take the entire risk of loss themselves in order to receive the greatest profits. However, there are increasing numbers of speculators and others specializing in the risk-bearing process that may share part of the burden of risk-taking.

Market Information

To maintain a fair market, both sellers and buyers must have access to accurate, adequate and understandable **market information.** They must know about the supply and demand of the product being traded. They should be able to consider other factors such as discount rates, government programs, weather conditions, population changes, number of livestock on feed, economic conditions, and other factors that affect supply and demand. Without adequate market information buyers and sellers are "shooting in the dark."

There are thousands of grain producers and each farm operation is relatively small in size. By contrast, grain buyers are few in number and quite large in size. Individual producers have limited ways to collect market information: talking with their neighbors and elevator operators and observing local growing conditions. But buyers, including terminal elevators, processors, exporters and boards of trade, usually devote great resources to gathering market information.

In the business of grain production, marketing and processing, farmers are often placed in an unfavorable position because of the difficulty in obtaining accurate market information. The Market News Service was created by the USDA to make accurate market information available to farmers. Information concerning supply and demand of agricultural commodities is made public by this service.

Market News Service gives crop reports which include farmers' intentions to plant, actual crop plantings, growing conditions, and actual amounts of grain produced. The Service provides information about the intended and actual supply of grain in the country and the world. To give a complete grain supply picture, grain carryovers from previous years are reported, as well as daily, weekly and monthly market reports. This information helps farmers keep up-to-date on what *has happened* and what *is happening* in grain marketing.

The information from Market News Service goes out through the media of newspapers, radio, television, recorded telephone messages, computers and government publications of both the state and the United States departments of agriculture. There are also private

market news organizations whose services can be obtained by subscription. The information they provide may be more detailed than the government reports and is often tailored to the specific needs of a group of sellers or buyers.

But it is not enough for farmers to know only what has happened or what is happening. They need to know what *will happen* to supply and demand for their product when it is ready for market. Again, the large grain buying organizations are able to predict intended grain production much better than the individual farmer is. However, the USDA has stepped in to help the farmer. Their Agricultural Marketing Service publishes outlook reports dealing with the factors that influence supply and demand for grain. These reports provide producers with information to improve their knowledge of future production needs. Thus farmers are able to make better judgments concerning which crops to plant, how many acres to plant, and how much to spend on production items (such as fertilizer).

These outlook reports are published regularly by the USDA and your state Cooperative Extension Service. Outlook meetings are usually held across the state by the local Extension Service personnel. To make your production and marketing decisions easier, be sure to study the market news and outlook reports provided by your teacher and the local Extension agent.

Market information can be classified in two categories: long-time outlook and short-time market news. Each has an important place in improving your grain marketing. A partial listing of grain marketing information services (Figure 1-4) is given in the next four pages.

Figure1-4

PARTIAL LISTING OF GRAIN MARKETING INFORMATION SOURCES

Source	Information Available	Frequency	Estimated Cost*	Where Available
PUBLIC				
Statistical Reporting Service (SRS)	Statistical reports on intentions, production, inventory and growing conditions for all commodities	Monthly to quarterly	No cost	Ohio Crop Reporting Service Room 608 Federal Bldg. 200 N. High St. Columbus, OH 43215 (614) 469-5590
Economic Research Service (ERS)	Situation and outlook reports for all commodities plus general topics such as finance, farm income, etc. Interprets the SRS reports.	Generally quarterly	$12.50 to $19.00/year	Superintendent of Documents U.S. Government Printing Office Washington, DC 20402
Foreign Agricultural Service (FAS)	World products and trade newsletter	Weekly	Free	Information Services Staff FAS Room 5918 South Building USDA Washington, DC 20250
	World situation for specific commodities	Generally monthly	$30 - $40 for monthly reports	
Agricultural Marketing Service (AMS)	Market news for various commodities	Weekly	Approximately $30/year	
	Codaphone - primarily livestock but also average Ohio cash grain for previous day and grain futures	Updated 3 times/day	Free	1-800-282-7605
Cooperative Extension Service	Summary of corn, soybean, and wheat production, use and price	Monthly	Free	Local county Extension office
PRIVATE				
Doane-Western	Newsletter and recorded message on phone line: - News affecting agriculture - When to buy and sell - News from Washington Books: *Futures Handbook* - $3.95 *Marketing for Farmers* - $12.95	Weekly newsletter Recorded message on phone updated twice daily - 10:30 a.m. and 3:00 p.m.	$45/year	Doane's Agricultural Report 8900 Manchester Road St. Louis, MO 63144 (314)-968-1000

CompuServe Computer needed to access services	Newsletter - Commodity news - Text articles - Chase report, etc.	Monthly Update two times per day	$19.95 for software from Radio Shack + $5/hour of total connect time in evenings and weekends. $45/month + $22.50/hour	5000 Arlington Centre Columbus, OH 43220 (614) 457-8600
Top Farmer Intelligence	Four-page written newsletter on cash futures markets and analysis of these.	Weekly	$99/year or $65/8 months	Top Farmers of America 205 W. Highland Blvd. Milwaukee, WI 53203
Market Insight	Includes features of *Top Farmer Intelligence*, 25 pages of current and historical charts, and charts that cover three years.	Weekly	$299/year or $199/8 months	1-800-558-9044
Agri Data Network Touch-tone or inexpensive adapter needed to access computer and get verbal report	Numerous reports on livestock and grain concerning outlook for markets.	Quarterly	$149/6 months or $99/4 months	
Agri-Star Their phone line links with user's computer terminal.	Reports from 30-page index of topics such as commodity news, weather, charts and home shopping.	Updated daily or weekly, depending on report	*With* membership in another Top Farmer program, fee $5/month. *Without* membership in another Top Farmer program, fee $48 + $10/month. - Charge of $0.60 to $1.20 per report from 7:00 p.m. to 7:00 a.m	
Farm Bureau Agri Visor	Toll-free phone lines for taped messages on market news and outlook - Two seminars	Updated daily	$340/year	Allan Brugler Farm Bureau 35 E. Chestnut St. Columbus, OH 43215

• Prices quoted in this table are subject to change without notice

(continued)

PARTIAL LISTING OF GRAIN MARKETING INFORMATION SOURCES

(continued)

Source	Information Available	Frequency	Estimated Cost*	Where Available
Farm Bureau *(continued)*				
ACRES Computer needed to access services	Computer access to 650 items, including futures quotes and other graphs, etc. Unlimited access.	Futures updated every 10 minutes	$540/year	(614) 225-8819
Professional Farmer				
Pro-Farmer	Hotline number for information and prices on grains and livestock plus special rate on Pro-Farmer seminars.	Updated daily	$88/year	Professional Farmer 219 Parkade Cedar Falls, IA 50613
Pork	Newsletter	Weekly	$50/year with Pro-Farmer $65/year without Pro-Farmer	(319) 277-1278
Corn, Bean Profit Alert	Newsletter	Weekly	$59/year with Pro-Farmer $79/year without Pro-Farmer	
Management Monthly	Newsletter on farm management	Monthly	$40/year with Pro-Farmer $55/year without Pro-Farmer	
Charting Service	All commodities charted on numerous graphs and charts.	Weekly	$45 for 3 months or $150/year for agricultural section	
Instant Update Terminal provided	Market, weather, *Washington Watch* and other information.	Updated several times per day	$95/month	
Wall Street Journal	Daily news	Daily	$100	1100 Briar Road Bowling Green, OH 43402
Kiplinger Letter	Market information	Weekly	$48	1729 H Street, NW Washington, DC 20006

AGNET- Their computer is accessed with micro computer with modem or remote terminal	Program name: **Basis** - develops historical basis patterns for certain crops **Cashplot** - plots cash prices **Corn project** - projects average U.S. corn price for various marketing years	Updated daily depending on report	$399/year or $199/6 months + $0.05 to $0.60 (average of $0.20/report) + $25/hour connect time. Average report and phone bill is $10/month.	Central Agnet Univ. of Nebraska Lincoln, NE 68583-0713 (402) 472-1892
	Market Chart - bar, moving average or point and figure charts on futures **Markets** - market reports and specialists' comments **Price data** - historic cash and/or futures prices **Price plot** - graphs of market prices **Production programs** **Accounting programs** **Education programs**	As desired	$50 membership fee + computer cost. • *prime time costs* = $0.85/second • *non-prime time costs* = $0.45/second of actual CPU (central processing unit) operating time. (CPU does a lot in 1 second.)	County Extension offices can borrow a remote terminal from district offices for access. Or users with their own micro computer and modem can work through the local county Extension office.

• Prices quoted in this table are subject to change without notice

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Suggested resource publication: *Grain Marketing in Ohio, 1984-1985*, Cooperative Extension Service, The Ohio State University

MARKETING ROUTES FOR GRAIN

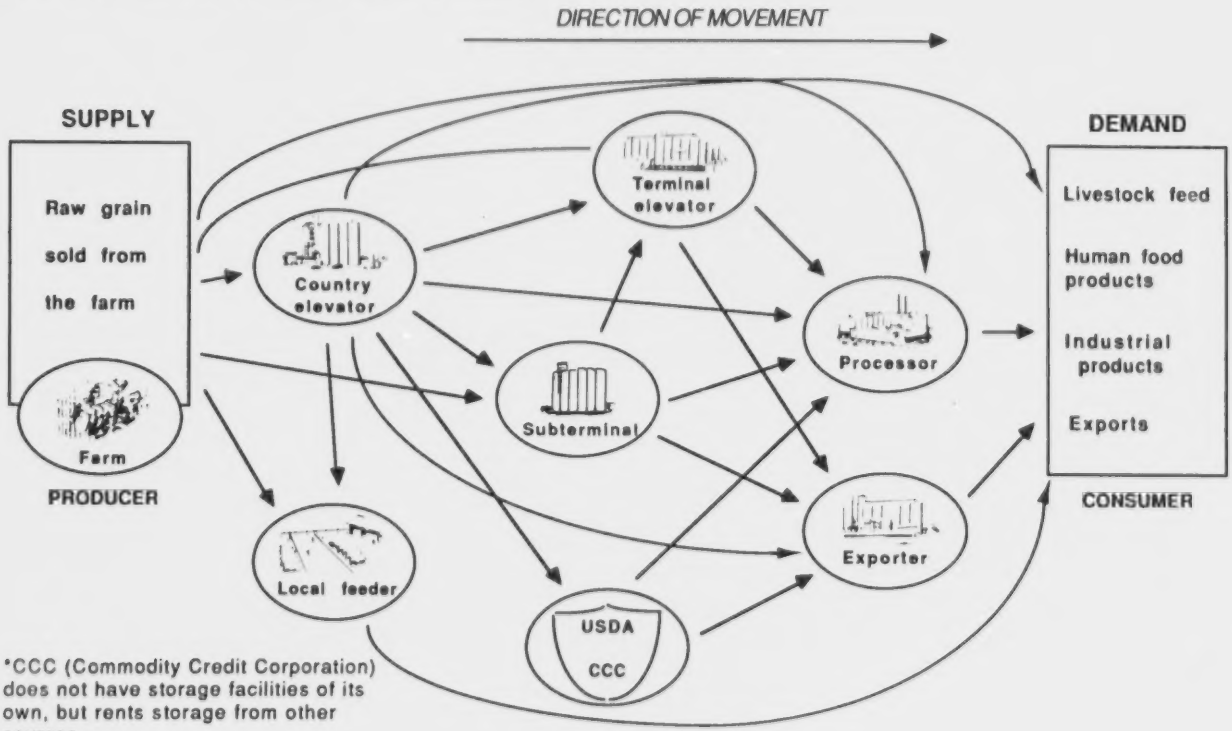
Grain production is seasonal and individual grain crops are harvested over a relatively short period of time. Most production locations are not near the consumer. As grain and grain products move through the marketing channels, they are bought and sold many times before they reach the consumer.

Grain Marketing Channels

Grain marketing channels consist of two things: 1) the organizations that handle the grain (including their facilities and equipment), and 2) the business transactions involved in the movement of grain or grain products from the producer to the consumer.

The raw grain either begins a journey by leaving the producer's farmstead at harvest time, or it is put into on-farm storage to leave at a later time. Farmers may feed some or all of their grain to livestock; then it will not enter marketing channels. Occasionally grain is sold to a neighbor, a very short marketing channel.

Today farmers are able to move their grain into the marketing channel at many more points than they could a few years ago. Since more farmers own large trucks and the road network is much better, grain can be transported great distances. The options available to farmers for selling grain are country, subterminal and terminal elevators; processors; or exporting agencies. There may be more than one choice at any given point in the marketing channel. Several country and subterminal elevators may be available, and two or three terminal or exporting elevators. The decision will be influenced by the farmer's available transportation and the distance to the receiving point. (Sometimes grain is channeled into the Commodity Credit Corporation where it will be stored in rented space and released into the marketing channel at a later date.) Figure 1-5 illustrates the possible movement of grain through the marketing channel. Note that farmers are at a disadvantage because they are at the bottom of the marketing channel.



*CCC (Commodity Credit Corporation) does not have storage facilities of its own, but rents storage from other sources.

Figure 1-5 Marketing channels through which corn, wheat and soybeans may move in the United States. *Adapted from:* G.S. Shepherd and G.A. Futrell, *Marketing Farm Products, Economic Analysis*, 7th edition, Iowa State University Press, 1982

Classification of Grain Marketing Agencies

Grain marketing agencies are classified by location and function rather than by size. There are three categories of ownership for grain marketing agencies:

- ***Independently owned***. Management decisions are made by the owner.
- ***Farmer cooperatives***. These are owned by patrons and operated by a manager hired by a board of directors.
- ***Line elevators.*** Multi-unit chains of elevators are located in a grain marketing channel and owned by one firm. This may be a grain processor or exporter that owns a terminal elevator, a subterminal elevator, or sometimes local elevators. Management decisions are made by the owner.

A brief description of each agency follows:

Country elevators receive most of their grain from farmers who usually make delivery using their own wagons, trucks or commercial trucking services.

Subterminal elevators receive over half of their grain from other elevators. Usually located in metropolitan areas, they market grain directly to terminal elevators, processors and exporters. They serve as an intermediate point between country and terminal elevators. Storage is provided and some blending is done to achieve uniformity.

Terminal elevators receive over half of their grain from other elevators and are located in major terminal markets and transportation centers such as Chicago, Kansas City and Minneapolis. They vary in capacity size from a few hundred thousand bushels to over 50 million bushels. Also, they assemble, store, price, grade, condition and finance grain. Chicago, Kansas City and Minneapolis provide futures as well as cash markets. They buy their grain from cash grain merchants; subterminal, river or country elevators; and farmers. The grain is received by truck, railroad, barge or boat and sold to processors, millers, distillers, feed manufacturers, exporters and occasionally to other elevators.

Port terminal elevators receive over half of their grain from other elevators and have facilities to load ocean-going ships. Typical locations are Chicago, Toledo, Baltimore, Norfolk and the Gulf Coast. In addition to other grain handling functions, they assemble and blend grain in shipload volumes to meet the specifications of foreign grain buyers.

Cash grain merchants buy grain from country elevators for resale to terminal elevators. Their profits are made from the margin between the buying and selling price. They take ownership of the grain when they make their purchase.

Commission merchants arrange for the sale transaction between buyers and sellers but do not take ownership of the grain. Their profits come from the commission fee.

Tracing Flow of Grain Through Marketing Channels
Examples

Shipment to European Common Market

A vocational agriculture student in Central Ohio harvested a crop and sold it to the local country elevator, making delivery in the farm-owned truck. The country elevator, in turn, sold the grain to a subterminal elevator in Columbus, Ohio, making the delivery with a large truck. The subterminal elevator filled a unit train, including the student's grain, and sent it to an export terminal in Norfolk, Virginia. The export terminal blended the grain with other grain they had received to meet the specifications for a market in a European Common Market country. The grain was then loaded on a ship and sent to Europe.

Shipment to U.S.S.R.

A vocational agriculture student in Southwest Ohio harvested a corn crop and sold it to a subterminal elevator located on the Ohio River in Cincinnati, Ohio, making delivery with the farm-owned semi-truck. The subterminal elevator loaded the corn on a river barge and shipped it down the Ohio River to an export elevator in New Orleans. Here the corn was blended with other corn to meet the specifications for a market in the U.S.S.R. The grain was then loaded on a ship and sent to the U.S.S.R.

Shipment to Japan

A vocational agriculture student in Northwest Ohio delivered grain in the farm-owned truck to an exporting terminal elevator located in the Lake Erie port at Toledo, Ohio. The exporting company blended the grain to meet the market demands of an importer in Japan. The grain was then loaded on a seagoing ship and sent through the Panama Canal to Japan.

Shipment to Processor

A vocational agriculture student in western Ohio sold grain to a local elevator. Delivery was made from the combine to the elevator using the farm's tractor-drawn wagons. The local elevator sold the grain to a terminal elevator located in Northwest Ohio using the grain to meet the specifications of a breakfast cereal manufacturer in Battle Creek, Michigan. Delivery was made by the local elevator using their grain trucks.

These are just a few illustrations of how your grain may move from your farm to its final destination in the marketing channel. Figure 1-6 illustrates how grain moves from the producer to the final customer. You might find it interesting to talk with your grain buyer to find out where your grain is going and then trace its route.

FUNDAMENTAL FORCES CAUSING CHANGES IN GRAIN PRICES

Why Market Prices Vary

The daily price of grain is determined by the actions of many buyers and sellers in different grain selling and buying locations. Both parties know what is happening in other markets by studying market information news. Whenever grain changes hands, a price must be agreed upon for each transaction. Information about these transactions is passed through the market news service. Therefore, a quoted price is the result of many different transactions. Prices quoted in different parts of the country vary due to the cost of moving the grain from where it is available to where it is needed.

At times grain prices vary daily by several cents per bushel. Usually (but not always) grain prices are lowest during the harvest season. It is difficult for farmers to plan their grain production and marketing programs when grain prices vary so much not only within each year but also from one year to the next (Figure 1-7). Forces that cause the market to move upward can quickly disappear causing rapidly declining prices. The lower market prices then remain low until an upward-moving force causes the

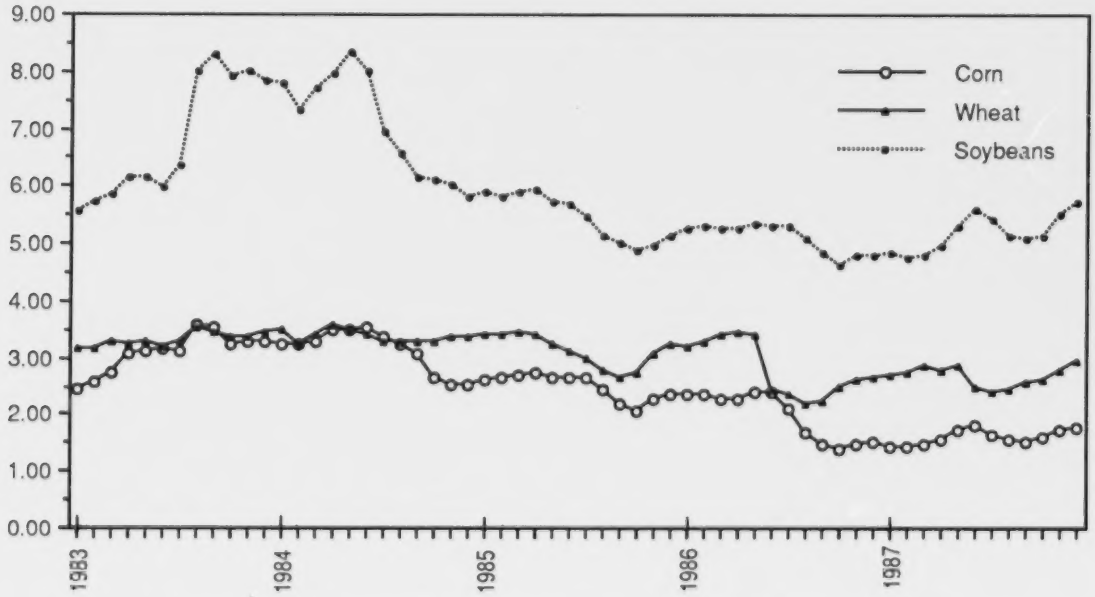


Figure 1-7 Monthly cash prices for soybeans, wheat and corn, 1982-1987.
Source: Ohio Agricultural Statistics.

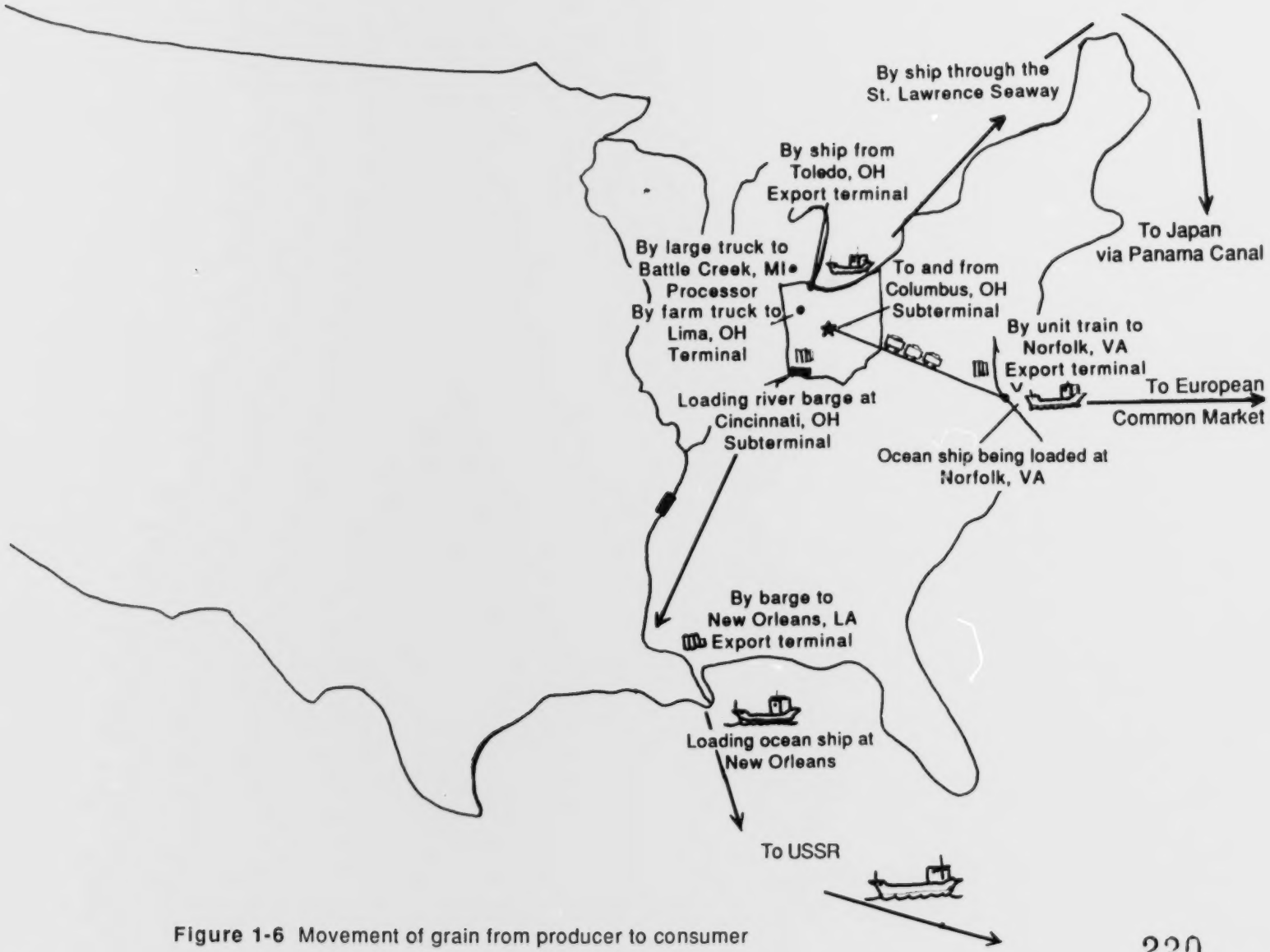


Figure 1-6 Movement of grain from producer to consumer

prices to improve for the producer. There are several *physical* forces affecting grain supply and demand. These forces cause the shifting grain prices. In the grain trade they are referred to as the **fundamental side of the market**.

Making a fundamental analysis of the market includes a consideration of supply and demand factors in forecasting grain prices. This builds on the economics principle that grain prices indicate the balancing point between *supply of* and *demand for* grain (Figure 1-8). Fundamentals are the main forces determining grain prices. An understanding of these fundamentals will help you prepare your grain production and marketing plan.

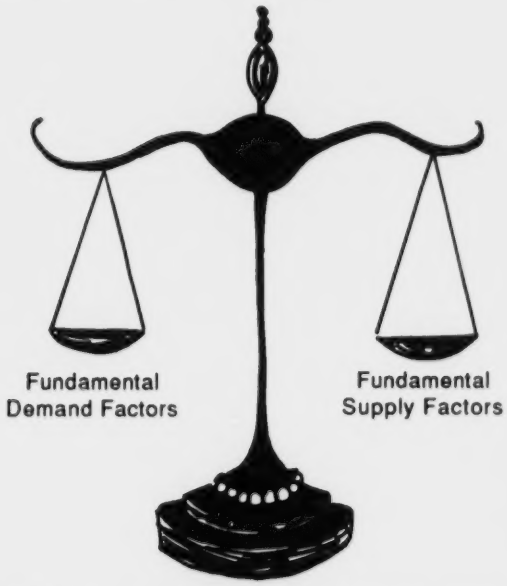


Figure 1-8 When supply of a grain balances or equals demand for that grain, a price is established at which producers are willing to sell grain and consumers are willing to buy grain.

Demand for the Product

THE LAW OF DEMAND

In general, the law of demand states that the more there is of a product, the lower the price; the lower the price, the more product that can be sold. If the demand for our grain remains the same, but our production increases, we should expect the price to go down.

Demand for grain is created by consumers wanting grain and having spending money available. Many factors determine what consumers want and the amount of money they have to spend.

Elastic and Inelastic Demand

With some products, the demand stays somewhat the same even if the supply goes up or down. People want a certain amount – no more and no less. The demand for these products is said to be **inelastic.** Salt is an example of a product which has an inelastic demand. To sell more of an inelastic demand product, the price must drop sharply.

With other products, a small change in price results in a large change in the amount bought. In other words, a large increase in the production of this item will not greatly decrease the price. Demand for these products is said to be **elastic.** An example of a product with an elastic demand is strawberries.

Generally, grain crops have inelastic demand. The amount of food the human stomach can hold is limited by its size; therefore, the total amount of food needed to feed our population is also limited. However, consumers will substitute one product for another; for example, poultry for red meat.

The satisfaction we get from eating a certain food, even if it is one of our favorites, decreases the more we eat. For example, suppose you are hungry and your grandmother offers you your favorite cookies – as many as you can eat. The first cookie probably tastes like the best cookie you have ever eaten and the second cookie will be almost as good. The third cookie will still be good, but less pleasing. The pleasure you receive from eating cookies will decrease with each additional cookie until you feel sick. Then you tell your grandmother you don't want any more cookies. When there is plenty of a certain food, people will eat lots of it. Later, when they are finally satisfied, they won't buy it anymore. An increase in the supply of a certain food will increase the consumption of that food only until people have had all they can eat. The price of that product will eventually drop. This is an example of the **law of diminishing returns.**

When demand is inelastic and there is a big crop, we can usually expect low prices and a low total income. On the other hand, if the crop is small, prices are usually higher, giving us a

higher income. The market price tells farmers if consumers want more or less of their product.

It is important for the grain farmer to know about current supply of and demand for grain. This information helps the farmer decide which crops to grow and how many acres to plant. Supply of and demand for a product also influences your marketing plan (Figures 1-9 and 1-10). The information presented in Figure 1-10 is for soybeans, but the same information is available for corn and wheat.

FACTORS AFFECTING DEMAND FOR GRAIN

1. Uses for Grain in the United States

Grains are used for direct **human consumption**, for **livestock feed**, and for **industrial production.** Though they are legumes, soybeans are included in this discussion of grain marketing. After processing they produce an oil which is used not only in human foods but in other areas such as paint manufacturing and producing meal for livestock feeds.

Wheat is principally used as human food and processed into many kinds of flour. Corn is largely used as a feed for livestock; relatively small amounts go into human consumption. Some corn products such as starch and alcohol also have industrial uses.

2. Export needs

Exports are an important part of the demand for United States grain products. Figure 1-10 shows how exports influence the demand for our grain products. This kind of information is available through Market News Service and should be used in planning your grain production and marketing strategy.

Through the outlook service predictions are always being made concerning the demand for grain. However, export demands are particularly difficult to estimate. In recent years grain production has been increasing in many of the world's developing countries. One example is India. A few years ago many of its people were starving because of a severe grain shortage. Today India is able to meet her own grain needs with some left for exporting. This was made

USDA GRAIN STOCKS REPORT MAR 31,1988

DATE	ONFARM	OFF FARM	TOTAL
	--SOYBEANS		
3/1/88	551,500	594,425	1,145,925
3/1/87	589,000	749,958	1,338,958
6/1/87	282,100	554,654	836,754
9/1/87	107,950	328,497	436,447
12/1/87	865,300	890,170	1,755,470
OHIO	30,000	36,900	66,900

11apr88 USDA US SUPPLY/DEMAND REPORT -- SOYBEANS
IN MLN BUSHELS. PRICE IN DLRS PER BUSHEL.

	-----86-87-----		-----87-88-----	
	APR 11	MAR 9	APR 11	MAR 9
BGN STOCKS	536	536	436	436
PRODUCTION	1,940	1,940	1,905	1,905
TOTAL SUPPLY	2,476	2,476	2,341	2,341
CRUSH	1,179	1,179	1,170	1,170
EXPORTS	757	757	785	760
SEED/FEED USE	57	57	56	57
RESIDUAL USE	47	47	40	39
TOTAL USE	2,040	2,040	2,051	2,026
END STOCKS	436	436	290	315
AVG FARM PRICE	4.78	4.78	5.50-5.80	5.35-5.75

Figure 1-10 Example of a computer printout showing supply and demand information for soybeans.
Source: Ohio Farm Bureau, ACRES Electronic Market News Service.

CROP MARKET SITUATION

Crop Year (Sept. 1)	Harvested Acres for Grain (millions)	Yield/A. (bushels)	SUPPLY: Production	SUPPLY: Carry-In	SUPPLY: Total Supply	DEMAND: Domestic Use	DEMAND: Export	DEMAND: Total Demand	DEMAND: Carry-Out	Average Season Price, Ohio
			(millions of bushels)							
U.S. CORN PRODUCTION, USE AND PRICE										
1981	74.5	108.9	8,118	1,393	9,511	5,013	1,967	6,980	2,534	$2.51
1982	72.7	113.2	8,235	2,534	10,769	5,415	1,834	7,249	3,523	2.67
1983	51.4	81.0	4,175	3,523	7,698	4,792	1,902	6,694	1,006	3.35
1984	71.9	106.7	7,674	1,006	8,680	5,121	1,865	6,986	1,648	2.66
1985	75.1	118.0	8,865	1,648	10,513	5,245	1,241	6,486	4,038	2.19
1986	69.2	119.3	8,253	4,040	12,294	5,908	1,504	7,412	4,882	1.50
1987	59.2	119.4	7,064	4,882	4,948	6,125	1,700	7,825	4,123	1.78
U.S. SOYBEAN PRODUCTION, USE AND PRICE										
1981	66.2	30.1	1,989	313	2,302	1,119	929	2,048	254	$6.14
1982	69.4	31.5	2,190	254	2,444	1,194	905	2,099	345	5.79
1983	62.5	26.2	1,636	345	1,981	1,065	740	1,805	176	7.73
1984	66.1	28.2	1,861	176	2,037	1,123	598	1,721	316	5.80
1985	62.2	34.1	2,099	316	2,415	1,139	740	1,879	536	5.10
1986	59.2	32.8	1,940	536	2,476	1,283	757	2,040	436	4.92
1987	56.4	33.7	1,905	436	2,341	1,266	785	2,051	290	5.90
U.S. WHEAT PRODUCTION, USE AND PRICE										
1981	81.6	34.5	2,785	989	3,774	847	1,771	2,168	1,159	$3.55
1982	77.9	35.5	2,765	1,159	3,924	908	1,509	2,417	1,515	3.08
1983	61.4	39.4	2,420	1,515	3,935	1,111	1,429	2,540	1,399	3.40
1984	66.9	38.8	2,595	1,399	3,994	1,154	1,424	2,578	1,425	3.35
1985	64.6	37.4	2,425	1,425	3,850	1,045	915	1,960	1,905	3.01
1986	60.7	34.4	2,092	1,905	4,018	1,193	1,004	2,197	1,821	2.58
1987	55.9	37.6	2,105	1,821	3,941	1,110	1,600	2,710	1,231	2.72

Figure 1-9 Supply and demand statistics for corn, soybeans and wheat in the U.S.
Prepared 4/88 by Dennis Henderson, Agricultural Economist, The Ohio State University.

possible in part through assistance offered from the United States and certain humanitarian groups. Such an increase in the production of food in developing countries may increase their ability to trade with the United States but reduces their need for importing grain.

Food (grain in particular) is sometimes used as a political tool. For example, grain may be offered to a nation in exchange for a useful political alliance. On the other hand, if a nation has committed an unfavorable political act, an **embargo** may be established. That country will be refused more shipments of grain. An example is the embargo that President Carter placed on the shipment of wheat to the U.S.S.R. when that nation invaded Afghanistan. Because these political moves are almost impossible to predict, it is also difficult to predict the effect they will have on the demand for grain.

3. *Use of Food to Meet Humanitarian Needs*

There are many hungry and starving people in the world (Figure 1-11). This situation is sometimes caused by natural disasters such as drought, earthquakes or floods. But sometimes local political policies may be the cause. If food is priced below the cost of production, farmers are discouraged from producing more food. In response to this need, our government, along with many humanitarian groups and individuals, purchases and sends food to these needy areas. In the United States the government supplies food stamps to the needy and in the private sector many organizations operate food pantries and kitchens for the hungry. Usually food is supplied to the needy for purely humanitarian reasons. However, political demands may also be part of the bargain of supplying food to some countries. Politics can also enter into the establishment of food distribution programs in this country.

4. *General Level of Prosperity*

Although people must eat, they will not buy the same quantity or quality of products during poor economic times as they will during good economic times. In short, to maintain a good demand for farm products, a large number of people in the United States must have a reasonably good income. The annual *USDA Agricultural Chartbook* provides current information on the prosperity level in the United States (Figure 1-12). Current economic indicators show that consumers have money to spend for products and services, but there are other factors that keep down the price of grain.

5. *Substitution*

When a product becomes too expensive, a cheaper one will be substituted if possible. Both producers and consumers can make these substitutions. For example, if the price of wheat is much lower than corn, a farmer might substitute wheat for corn when feeding livestock.

Figure 1-11 Poor grain distribution practices as well as poor soil and weather reversals can result in malnutrition and starvation.

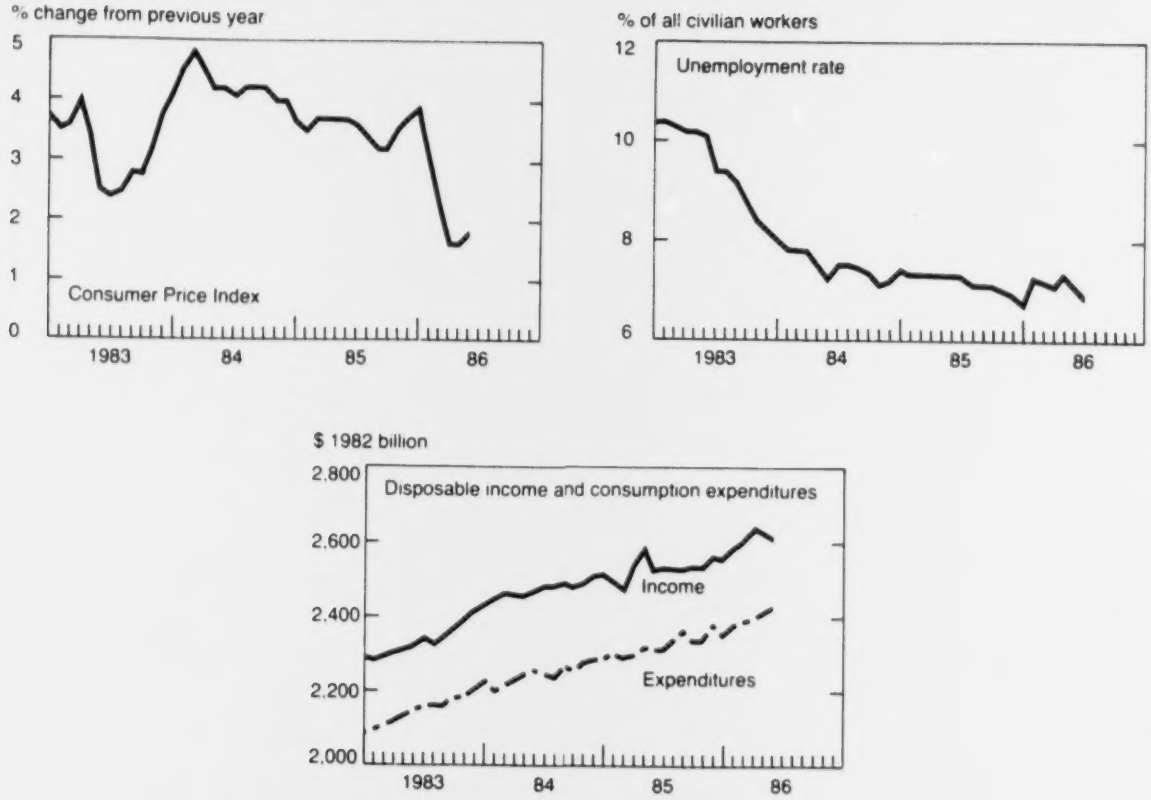


Figure 1-12 For the years 1983 through 1985 the consumer price index or the price paid for goods and services has been declining. For the same period, the unemployment rate has declined and the amount of income available for purchasing goods and services has increased. *Source:* USDA, *Agricultural Chartbook*, 1986

Also, less soybean oil meal may be used as a protein feed if the price of soybeans is higher than corn.

The total amount of food purchased by consumers will not change much, but the demand for individual commodities may vary greatly. For example, calorie conscious people may eat more low calorie vegetables rather than high calorie pastries. Bread and potatoes are two foods that might be interchanged depending upon which has the most favorable retail price.

When a producers' association or manufacturer promotes a product, any resulting increase in sales may be at the expense of a competing product. This is caused by the *inelastic demand* for many agricultural products. For example, if the manufacturers of breakfast cereals made from corn successfully promote their product, the demand for cereals made from other grains will probably suffer.

6. *New Uses Increasing Demand*

Demand for any food product can be increased by finding new uses for the product, by promoting the product, or by an increase in population.

Scientists are always searching for new industrial uses for farm commodities. One example is the production of alcohol from corn for blending with gasoline. The success of this venture depends upon the comparative costs of alcohol and gasoline. Another example is the addition of corn starch to the plastics used in disposable food containers. Corn starch makes them biodegradable so that eventually they will break down into natural elements in the environment.

To improve sales of common, less appealing foods, manufacturers sometimes package them in new ways to make them more attractive. Also, with more people in the job market today, there

is an increased demand for prepared foods that save time and labor in the kitchen. Although these factors may not increase overall food consumption, the amount of money spent on food items will increase. Unfortunately, this money will not go to the producer.

Supply of the Product

THE LAW OF SUPPLY

The law of supply generally states that an increase in the price of a product will create a larger supply of that product as soon as it is available. Similarly, a decrease in price will decrease the amount of the product that comes to market and eventually decrease the amount produced. Farmers always consider the law of supply as well as the law of demand when they plan production for next year.

At any one time the total supply of grain in the U.S. depends upon the annual production. This is determined by the number of acres planted, yield per acre, and amount of grain carried over from previous years (Figures 1-9 and 1-13). Imports also affect the total supply of grain; however, the United States imports very little grain.

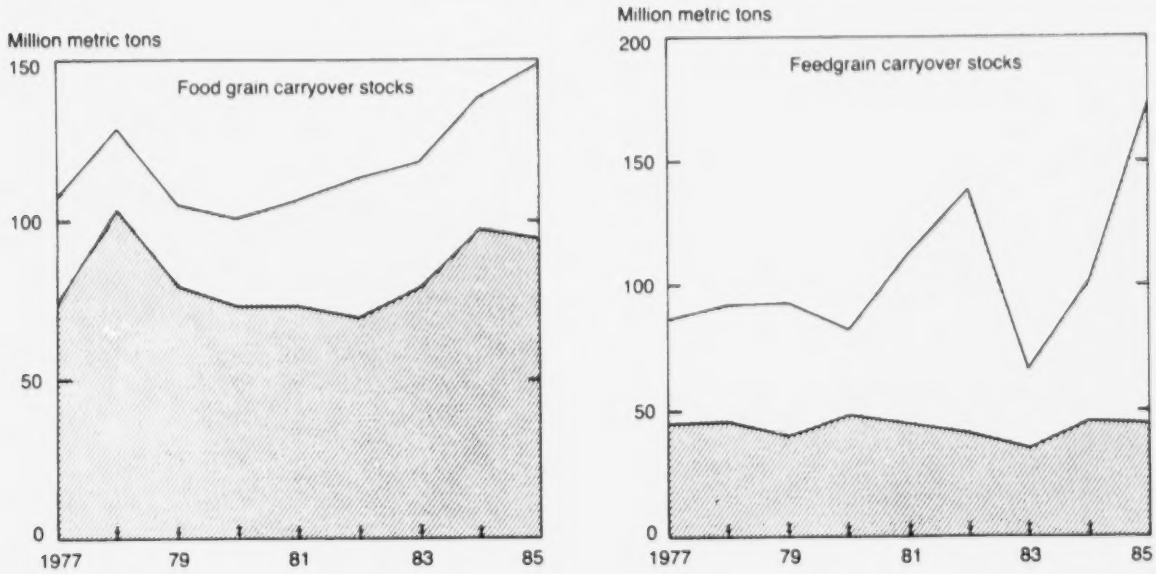
FACTORS AFFECTING SUPPLY OF GRAIN

1. Total Acres of Crop Planted

The acreages planted of each crop are different from one year to another. Estimates of projected acreages (planting intentions) and the actual acreages planted and harvested later are available from crop-reporting services. Information like that provided in Figure 1-9 for 1981-1987 can be updated for later years to keep information current. During periods of a surplus supply of grain, government programs are often designed to reduce the acreage of crops planted. However, this does not result in production being reduced as much as might be expected. Farmers tend to withhold their poorest land from production and may do a better job of farming their remaining land.

2. Yield per Acre

Yield per acre can be affected by such items as fertility; cultural practices; and weather at planting, during the growing season, and at harvest. Crop reporting services provide estimated yields at various times throughout the growing season (Figure 1-9). Generally, total crop production remains stable from year to year. However, individual crop production may vary greatly.



Food grains include wheat and milled rice.

Figure 1-13 World and U.S. carryover stocks. *Source*: USDA, *Agricultural Chartbook*, 1986

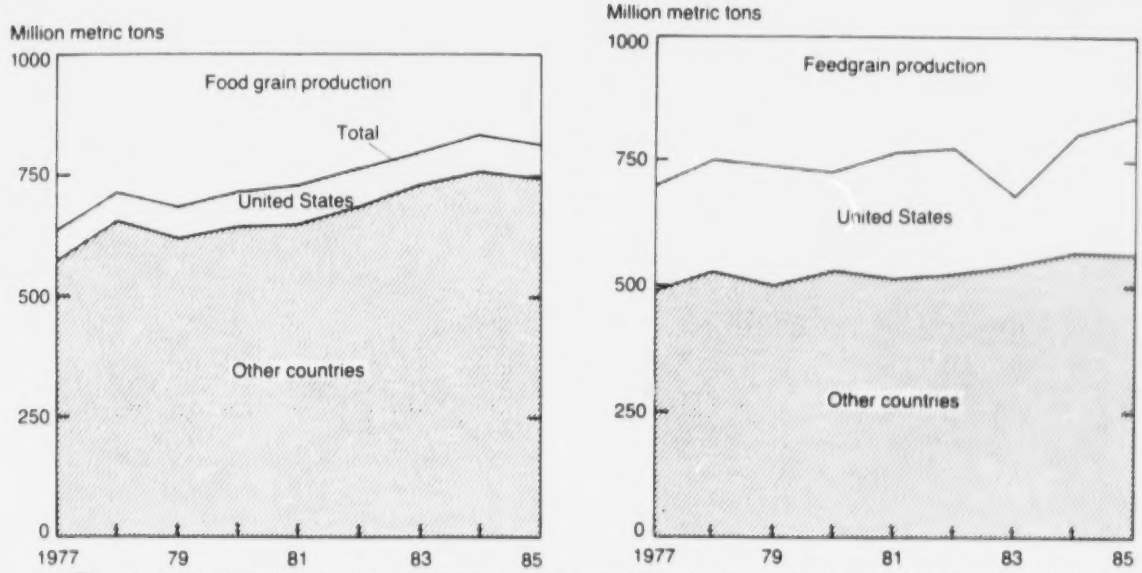


Figure 1-14 World and U.S. grain production. *Source*: USDA, *Agricultural Chartbook*, 1986

3. *Carryover*

The amount of grain not used during the previous year is also a factor in the supply. Some years very little grain remains in storage at the end of the year. Other years a significant percentage of the total year's production may not be used and is carried over to the next year. Figure 1-13 shows the amount of carryover from one year to another.

4. *World Production*

The amount of grain produced throughout the world has a great influence on the grain market in the United States. World food grain production reached an all-time high in 1984 and has since leveled off (Figure 1-14).

In the early 1980's the United States' share of the world market for feed grain kept falling, but '87-'88 estimates indicate a sharp rise (Figure 1-15). The fluctuation of the United States' share of the soybean market is shown in Figure 1-16.

The cost of producing grain is generally higher in the United States than in the countries that are our chief competitors (Figure 1-17). The high fixed costs of grain production in the U.S. drive up our total production costs. Figure 1-18 shows the comparative costs of shipping soybeans from Argentina, Brazil and the United States to Rotterdam and Japan.

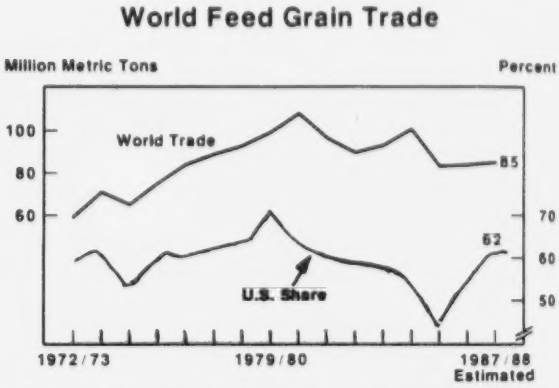


Figure 1-15 Fluctuation in the U.S. share of the world grain trade. *Source*: USDA, *Outlook '88 Charts*, 1987

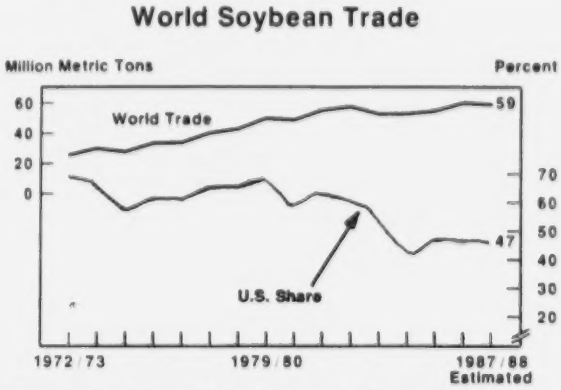


Figure 1-16 The United States' share of the world soybean trade has risen slightly since 1986. *Source*: USDA, *Outlook '88 Charts*, 1987

Cost Item	Argentina	Brazil	United States
Variable Costs *($/acre)*			
Seed	$11.53	$9.63	$10.48
Fertilizer	--	36.39	7.66
Chemicals	6.66	9.80	18.22
Custom Operations	19.55	--	3.24
Fuel & Lube	9.37	13.79	12.60
Repair	7.38	4.35	7.68
Hired Labor	--	--	--
Miscellaneous	--	4.03	0.24
Interest	1.90	2.65	2.94
Total Variable	$56.39	$80.64	$63.06
Fixed Costs *($/acre)*			
Overhead	--	$1.71	$13.60
Taxes and Insurance	$9.77	3.08	16.47
Capital Replacement	7.74	8.92	27.57
Labor	9.80	4.29	14.43
Interest	5.72	4.29	9.72
Land Charge	15.79	28.26	69.89
Total Fixed Costs	$48.82	$50.55	$151.68
Total Production Costs	$105.21	$131.19	$214.74
YIELD (bu/acre)	31.2	26.8	32.9

Figure 1-17 The high fixed costs of soybean production in the United States place us at a disadvantage in the world grain market (U.S. dollars per bushel, 1985 price and exchange rate).
Source: *Production and Marketing Costs for Corn, Wheat and Soybeans in Major Exporting Countries*, Dept. of Agricultural Economics and Rural Sociology, Ohio State University, August 1986.

Figure 1-18 Production and marketing costs for soybeans landed in Rotterdam and Japan compared for Argentina, Brazil and the United States (U.S. dollars per bushel, 1985 price and exchange rate). *Source:* (same as for Figure 1-17)

Cost Item	Argentina	Brazil	United States
		($/bushel)	
Variable Costs	$1.81	$3.01	$1.92
Fixed Costs	1.56	1.89	4.62
Total Production	3.37	4.90	6.54
Marketing	0.82	1.08	0.65
F.O.B. Port	4.19	5.98	7.19
Ocean Freight	0.50	0.45	0.35
	4.69	6.43	7.54
Ocean Freight	0.88	0.93	0.71
	5.07	6.91	7.90
Land Rent	0.51	1.06	2.13
Yield (bu./acre)	31.2	26.8	32.9

The climate and soil conditions for growing crops in Argentina and Brazil are equal to or better than those found in the United States. However, their transportation system from the points of production to the export ports is poor, and this drives up their costs. When they are able to improve their transportation system, their overall costs will eventually be lower.

Some unpredictable **production cost factors** that should be watched closely in these countries are:

- The effect of local government agricultural programs. Often grain production is subsidized by the government, and that lowers the cost of production.
- Poor growing conditions brought on by floods or drought. These can increase production costs and reduce the total supply.
- The value of the United States dollar in comparison to foreign currency. A low U.S. dollar favors producers. This needs to be considered country by country since the comparative value of the dollar is not the same for each country's currency.
- The rate of inflation in both our own and competitive countries.

United States grain producers must follow closely the political, economic and climatic conditions in competitive countries. This information is available in outlook reports which were mentioned earlier in this manual.

The one factor you can have the most control over is your own cost of production. To be competitive in the grain market, you must produce your grain as efficiently as possible. Ways to accomplish this will be considered in other lesson units.

Other Factors Affecting Price

1. Large Quantities of Grain at Harvest

Modern harvesting machinery is so large and efficient that more grain is brought to the elevator in a shorter period of time than the elevator can efficiently handle. This is especially true if the grain carries a high percentage of moisture. Moist grain requires drying time before it can be safely stored. These conditions may cause prices to drop below reasonable levels at harvest time.

The opposite situation (prices rising) occurs when harvest conditions keep grain from arriving at the elevator as fast as needed to meet commitments for processors or exporters.

2. Storage Cost

Since grain is harvested in the summer or fall but is used throughout the year, it must be stored. Holding and storing grain is costly and may increase the price of grain later in the year, if other conditions remain the same.

3. Interest Charges

Storing grain prevents your spending the money you would have had if the grain had been sold. You may even have to borrow money to meet operating expenses. To compensate for this you must add to the carrying charge an interest charge for the capital value of your grain.

4. Available Transportation

Transportation uncertainties and tie-ups with trucks, railroads and ships can cause temporary price changes. These conditions may be caused by strikes, equipment being used to transport other products, or unusual conditions at the time of harvest.

5. Amount of Storage Available

Lack of available storage may cause prices to drop. This scarcity may be brought about by larger-than-normal production in one section of the country. At times it becomes necessary to store grain on the ground until suitable storage facilities become available.

6. Government Policies

Since a large part of our grain products is exported, decisions made by government leaders in the United States may cause great variation in the price of grain. These decisions may

have to do with foreign aid, trade arrangements, U.S. reserve stocks of grain, or any other financial dealings with foreign countries.

Government programs have gone from periods of discouraging production to encouraging production and back again. Programs that increase grain prices actually encourage greater production. When fewer acres are planted, farmers tend to stop planting their poorest land and do a better job of farming with the remaining acres.

7. *Lack of Information*

Due to their comparatively small numbers, large size of operations, and large volumes in which they deal, grain buyers do a better job of gathering market information and influencing control over the market than do individuals. Individual producers have relatively little control over the product they sell because they are acting alone and dealing in smaller volumes. Regardless of how well informed these producers are, the decision of one producer has little effect on the total outcome. This makes the concept of a free market something of a myth.

The use of computers to spread market news will help farmers become better informed concerning market fundamentals. Information dealing with supply and demand factors affecting grain prices is updated daily. Figure 1-19 is an example of a report that deals with wheat planting intentions. Such reports are available for both crops and livestock. Domestic and foreign weather conditions affecting crop production are included. This kind of information helps producers deal with well-informed grain merchants.

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18apr88/4:00p.m.PRICE'S GRAIN REPORT:  WHEAT OUTLOOK
Latest projections for wheat production worldwide continues
to point to a further tightening between supply and demand
with continuing recovery in wheat prices.  USDA's latest
estimates project worldwide wheat production up slightly at
502.3 MMT (18.5 billion bushels) and world ending stocks at
149.6 MMT (5.5 billion bushels) versus 177.0 MMT (6.5
billion bushels) in 1986/87.  This drawdown in stocks
worldwide introduces a new sensitivity in the wheat market
to weather and crops developments over the next few months.
These impending developments have longer term implications
for such interrelated factors as future adjustments to U.S.
wheat acreage set-aside, levels of CCC wheat auctions and
the stimulation of production in other countries.  The
current crop outlook worldwide ranges from "fairly good" to
"quite favorable" and will certainly see increased expansion
of plantings in many areas that have had declining acreage
in the last few years.  For the U.S. wheat sector, the
ending stocks/use ratio has declined from 82.9 percent in
1986/87 to a forecast 48.2 percent in 1987/88.  Much of this
decline in stocks has come from CCC inventory via loan
redemption (in January 1988, farmers redeemed 12 million
more bushels from CCC than was entered).  The other "new"
factor affecting ending stocks is CCC certificate auctions.
Additional CCC stocks will be auctioned weekly to make wheat
available to both the domestic and export market.  A recent
USDA analysis indicates that an additional 165 million
bushels of wheat will be needed from CCC stocks before June
1, implying an average weekly auction of 13 million bushels.
Thus the next few months' wheat production will deserve
attention as part of a increasingly active and complex wheat
market. (Timothy L. Price)
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Figure 1-19 A computer-generated market news report dealing with worldwide wheat production.
Source: Ohio Farm Bureau ACRES Electronic Market News Service, 1988

CHAPTER 2

GRAIN DELIVERY, GRADING, AND STORAGE

In just a few weeks your grain is harvested. But the grain you produce is used throughout the following year for human food, livestock feed, industrial products, and export needs. For grain to move through the marketing channels and be available to consumers at the desired times, the harvest excess must be stored and released when needed. Thus, **storage** is the marketing function that enables your grain to move to consumers in the desired quantities at the required time.*

At harvest the problem facing you, the producer, is whether to sell your grain directly from the combine or to store for sale or use at a later date. You may choose to store your grain if you believe that later in the year you can obtain a higher price that will more than pay for storage costs. Studying market news and outlook reports from various sources can help you in making this decision. However, even the most experienced grain trader cannot be sure of the course prices will take in the future.

STORAGE COSTS

Whether you store your grain on your farm or in a commercial storage facility, the owner of the grain must bear certain fixed and variable costs. These costs are as follows:

Fixed costs are for the ownership of the grain storage facilities. If you have such facilities on your farm, the following costs are continuous whether the facilities are used or not. They include:

- Depreciation
- Maintenance
- Interest on capital investment
- Insurance on structures and equipment
- Property taxes

*For a more detailed study of grain storing methods and costs see "Suggested Teaching Materials," Chapter 5 of *Grain Marketing in Ohio*, Department of Agricultural Economics and Rural Sociology, The Ohio State University.

Variable costs are for the grain being stored and occur only while the grain is actually in storage. They include:

- Drying, aeration - electricity and fuel
- Insurance on grain
- Interest for value of grain stored
- Labor and management
- Transportation of grain to storage facilities
- Cost of quality maintenance
- Loss of grain in storage due to rodents, excess drying and handling

If you store your grain in your own on-farm facilities, you will bear these costs, both fixed and variable. If you use commercial storage facilities, the storage fee will include these costs plus the owner's profit. If you do not presently have storage facilities available, you should consider the advisability of expending the capital outlay required to build such facilities.

Riskbearing

Riskbearing is a marketing function that must be considered when grain is stored. Prices may decline or not increase as much as you anticipated. Grain may be lost or damaged due to some natural catastrophe such as flood or fire. The risk of price decline may be shifted to speculators, if desired, by entering the **futures market** (to be described later).

Following are some of the risks involved in holding grain in storage.

- ✦ Natural hazards such as fire, wind, rain, flooding and other catastrophes. Most of these risks can be covered by insurance.
- ✦ Deterioration in quality resulting in loss of condition caused by improper or inadequate storage facilities or procedures, insects, heating, condensation, mold, and other factors.
- ✦ Deterioration in price with no change in quality.

- Change in consumer preference.
- Increase in supply without corresponding increase in demand.
- Decline in general business conditions or economy – the amount of money people have to spend.
- Increase in dollar value in relationship to foreign currencies. The cheaper the U.S. dollar, the more grain foreign currencies will buy.
- Political decisions such as grain embargoes.

STORAGE CHOICES

If you decide to store your grain you must then decide whether to store it on your farm or in a commercial storage facility. Each agency in the grain marketing channel has storage facilities available, though some may be located at too great a distance from your farm for your consideration.

On-Farm Storage

Many farmers now have storage available on their farms. Storage bins of steel, wood, or other construction are used to store grain for later sale or for feeding livestock. Often some kind of on-farm drying facilities are available such as in-bin drying equipment or separate batch or continuous flow driers. (The facilities, equipment and procedures to follow in drying grain on the farm will be considered in another lesson unit.)

Airtight silos are used for storing high moisture grain for later feeding of livestock. (Again, the details of high moisture storage of corn will be considered in another lesson unit.)

The following items have been listed as important considerations by farmers when using on-farm storage.

- Selling grain at harvest when prices are usually lowest can be avoided.
- Waiting in elevator lines at harvest time can be eliminated.
- More control can be gained in the marketing of one's grain by increasing the market period.
- Extra attention to marketing is demanded.
- There is a capital investment in grain storage equipment and facilities whether they are used or not.
- Grain can be stored all year at the same fixed cost.
- Personal care and management of the farm-stored grain is necessary to avoid loss during the storage period.
- The cost of on-farm storage may or may not be cheaper than elevator storage.
- Some elevators increase the rate charged for drying grain at harvest time.
- Holding grain increases the risk involved.

Even if farm storage is available for your crop, the possibility of increase or decrease in value of the crop must be studied carefully as you decide whether or not to store. One tvpe of on-farm storage is shown in Figure 2-1.

When selling grain from on-farm storage, it is important for you to know your storing and drying costs. To be profitable, these costs must be recovered from increased grain prices during the storage period. If these costs are not recovered from increased prices, selling the grain at harvest would have been more profitable. (For assistance in determining storage and drying costs, see *Individual Study Guide for Drying Corn on the Farm*, another Curriculum Materials Service publication [see reference list]. Also, *Grain Marketing in Ohio*, "Suggested Teaching Materials," Chapter 5 - "Economics of Grain Storage" is a good source of assistance in determining on-farm grain storage costs [see reference list].)

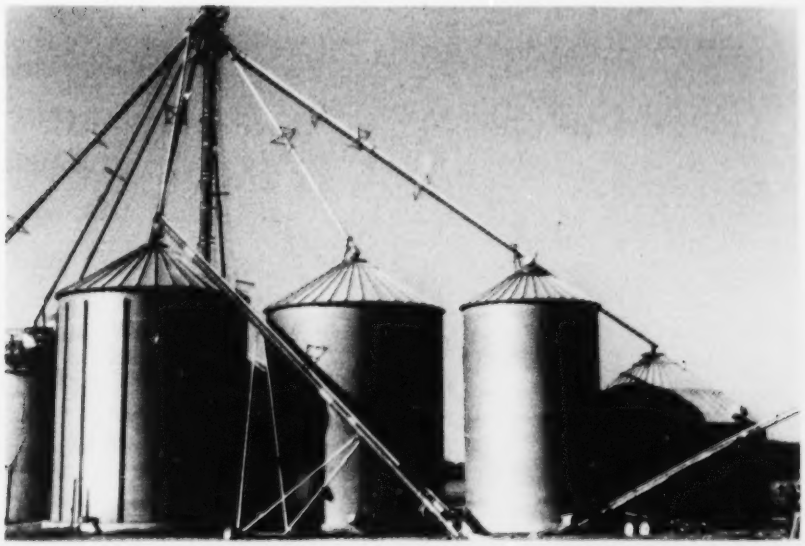


Figure 2-1 An example of on-farm storage facilities.

Off-Farm Storage

When you decide to use off-farm storage for your grain, be very careful to choose a reliable elevator. Check first to see whether the owner and/or manager has a reputation for honesty and fair dealing. In the past many farmers have lost much or even all of their stored grain because of unscrupulous commodity handlers.

The types of off-farm storage are:

- Regular storage at elevators
- Warehouse receipt storage at elevators
- Grain bank storage (sometimes called *feedbank*)

Licensing of Warehousemen or Commodity Handlers

The elevator or warehouse must be licensed to handle grain by the state and may be licensed also by the federal government. There are many safeguards to the farmer who stores grain in a facility that meets the requirements for licensing. If you do not see the license displayed in a prominent place, ask to see it. You will receive no protection from fraud if you deal with an unlicensed grain dealer.

Ohio Commodity Handlers License

(Other grain producing states may have similar licensing requirements.)

All grain handlers in Ohio who purchase, sell and store grain must be licensed by the Ohio Department of Agriculture. This license, shown in Figure 2-2, should be prominently displayed by all Ohio grain dealers. To obtain a license grain handlers must meet the following requirements:

- Pay an annual fee of $250.
- Have a net worth equal to 10 cents per bushel for the number of bushels handled during the previous year, but no less than $25,000 nor more than $200,000.
- Remit (send money) to the Ohio Department of Agriculture as required, 1/2 cent per bushel to be placed in a special account to be used to indemnify (pay for loss) those grain depositors who have loss due to warehouse failure.
- Depositors will be paid any monies not recovered through other means for 100 percent of the first $10,000 of the loss and 80 percent of the remaining dollar

value. A copy of the claim form to be used in case of loss is shown in Figure 2-3.

- The warehouse must keep complete and accurate records on all commodities. The Ohio Department of Agriculture has the right to examine such records.
- The warehouse must annually submit a current financial statement.
- The warehouseman is responsible for maintaining quality of grain in storage.
- The warehouseman may purchase warehouse receipts from the Ohio Department of Agriculture to issue to producers for collateral purposes. The receipts are controlled by the Ohio Department of Agriculture and may be negotiable (Figure 2-4) or non-negotiable.
- Grain deposited by producers for regular storage, warehouse receipt storage, or grain bank storage must be held by the warehouseman in like quantity and grade at all times for delivery upon demand. This is called **bailment storage**.
- The warehouseman must have valid insurance for the facility and commodities. A copy of the policy must be on file with the Ohio Department of Agriculture.
- The elevator must have a signed agreement on file for each delayed pricing arrangement. Ninety percent of the commodity, its proceeds, or rights to the commodity must be maintained at all times by the elevator.
- Ohio Department of Agriculture certified personnel must sample and test grain as it is received. Copies of the Verification of Attendance at a grain grading school and a certificate for Agricultural Commodities Tester are shown in Figure 2-5. The Ohio Grain and Feed Association Directory lists the organizations that buy grain in Ohio.

(continued on page 34)

OHIO DEPARTMENT OF AGRICULTURE

Issued _____ License No

Fee Paid _____ Whse Capacity

Location _____ State Code

GRAIN WAREHOUSE SECTION
COLUMBUS, OHIO 43215

AGRICULTURAL COMMODITY HANDLER

THIS IS TO CERTIFY THAT THE PERSON NAMED HEREON, HAVING COMPLIED WITH THE REQUIREMENTS OF SECTION 926.05 OF THE REVISED CODE OF OHIO, IS LICENSED TO OPERATE AS AN AGRICULTURAL COMMODITY HANDLER AT THE LOCATION SHOWN ABOVE.

Steven Maurer

Governor
RICHARD F. CELESTE

(POST IN CONSPICUOUS PLACE)

DIRECTOR OF AGRICULTURE
STEVEN D. MAURER

AGR 1254 (Rev. 5/86)

Figure 2-2 The Agricultural Commodity Handler license of the State of Ohio

OHIO DEPARTMENT OF AGRICULTURE
GRAIN WAREHOUSE DIVISION
Columbus, Ohio 43215

INDEMNITY FUND CLAIM FORM

Do not write in this space

Case No. _____

Court _____

Location _____

Date _____

Claim against _____

Address _____

Name of Claimant _____

Address _____

Has your claim been filed with the Receiver or Trustee? Yes _____ No _____

If yes, date filed _____

COMMODITY _____ (File separate claim for each commodity and each type)

Type of claim:
(Mark with an X)

_____ Delayed Price

_____ Sold and Priced (not settled for)

_____ Bailment (Grain Bank and/or Storage)

SUMMARY OF CLAIM (Fill in the information you have available)

Ticket No.	Date	Net Lb	Net Bu	Base Price	Adjustments	Net Price	$ Amount

TOTAL NET BUSHELS _____ TOTAL $ AMOUNT _____

Have you received a partial settlement or advance on the commodity listed above? _____

If yes, what amount? $_____

Please attach the original scale tickets, or photocopies thereof, of each ticket listed in the claim. If you need originals returned, mark "X" ☐

Forward your claim to the Ohio Department of Agriculture, Grain Warehouse Division, 65 South Front Street, Room 609, Columbus, Ohio 43215. Phone No.: 614-466-7564.

_____
Signature of Claimant

_____
Social Security Number or
Federal Tax Identification Number

Social Security or Federal Tax Number must be listed or claim cannot be processed.

Figure 2-3 Indemnity Fund Claim Form, Ohio Department of Agriculture, Grain Warehouse Division

OHIO DEPARTMENT OF AGRICULTURE - GRAIN WAREHOUSE DIVISION - NEGOTIABLE WAREHOUSE RECEIPT

Licensed Handler
Location of Warehouse
Date Receipt Issued _____
Name & Address of Depositor _____

Receipt No.
Ohio Code No.
CCC Code No.

Commodity	Grade	Gross Lbs.	Doc	Net Lbs.	Net Bushels	Rate of Storage Charges
						Elevation Ppd. In _____ Out _____ Storage paid to

SUPPLEMENTAL INFORMATION FOR U.G.S.A. -- NOT PART OF WAREHOUSE RECEIPT

T.W.	%Mst	%Pro Spl Snd	%TD	%HD	%FM	%SBK	Def	Date Rec'd	RR	Bg	Tk	CCCChgs	Type Stg	Area

ADVANCES MADE OR LIABILITY INCURRED FOR WHICH THE HANDLER CLAIMS A LIEN _____

The agricultural commodity identified hereon is stored in a warehouse under the control of the licensed Agricultural Commodity Handler named hereon and is insured against loss or damage by fire, internal explosion, lightning, or windstorm. The commodity has been graded according to the United States Grain Standards Act. The licensed Handler is not the owner of the commodity covered by this receipt either solely, jointly, or in common with others unless the facts of such ownership are stated hereon. The person to whom this receipt is issued, or to whom it is negotiated by endorsement, is protected against loss of the commodity or the value thereof according to the terms of Section 926.18 of the Ohio Revised Code. Upon return of this receipt properly endorsed and payment of the Handler's charges named hereon, said grain or grain of the same or better grade will be delivered to the above named depositor or his order.

REMARKS:

Authorized Signature

OHIO DEPARTMENT OF AGRICULTURE - GRAIN WAREHOUSE DIVISION - NEGOTIABLE WAREHOUSE RECEIPT

AGR 1253 GOLDENROD ORIGINAL CANARY EXAMINERS PINK AND GREEN WAREHOUSEMAN'S BLUE DEPOSITORS

SIGN BOTH THE STATEMENT AND THE ENDORSEMENT

STATEMENT OF OWNERSHIP AND ENCUMBRANCES

The undersigned hereby certifies on the date stated that he is the owner, or authorized agent of the owner, of the commodity covered by this receipt and that, other than the Handler's lien evidenced on the face of this receipt and the following, there are no liens, mortgages or other encumbrances against said commodity.

Date _____, 19__

Signed _____

ENDORSEMENTS

Figure 2-4 A negotiable warehouse receipt prescribed by the Ohio Department of Agriculture, Grain Warehouse Division, to be issued to farmers storing grain.

VERIFICATION OF ATTENDANCE AT GRAIN GRADING SCHOOL

No. _____

(Please print name and address)

Name of person (applicant) to be certified _____
Last First

Company name _____

Address _____

_____
City State Zip

School attended _____

GRAINS Wheat _____ Year Oats _____ Year

Corn _____ Year Beans _____ Year

Date _____ _____
Instructor

Figure 2-5 Your grain buyer should have a copy of the Verification of Attendance at grain grading school (above) and a Certified Agricultural Commodity Tester form (below) issued to each grain tester by the Ohio Department of Agriculture, Grain Warehouse Division.

OHIO DEPARTMENT OF AGRICULTURE
Grain Warehouse Division
Columbus, Ohio 43215

Certificate No

Issued

CERTIFIED AGRICULTURAL COMMODITY TESTER

The person named hereon has complied with the requirements of Section 926.30 of the Revised Code of Ohio and is certified to test the following agricultural commodities:

WHEAT ____ CORN ____ OATS ____ SOYBEANS ____

This certificate is non-expiring and remains in effect until cancelled or revoked by the Director of Agriculture.

Dale Locker

Director of Agriculture

(Post in a conspicuous place)

Federal Warehousemen Licensing

The U.S. Warehouse Act authorizes the Secretary of Agriculture to license warehousemen who store grain for others. A copy of the certificate to be displayed by federally licensed warehousemen is shown in Figure 2-6. Some of the requirements for acquiring a license are as follows:

1. The facilities used for storing grain must have:
   a) bins for keeping different grades separated;
   b) receiving and loading facilities;
   c) adequate turning and conditioning equipment; and
   d) sampling and grading equipment for determining grades according to U.S. Grain Standards.

United States Department of Agriculture

LICENSE No. UNITED STATES WAREHOUSE ACT

_____

is hereby licensed in accordance with the United States Warehouse Act and the regulations for _____ warehouses thereunder to conduct the _____

_____

located in _____, County of _____,

State of _____, and composed of the following:

Said warehouseman is authorized to store not in excess of _____ at any one time.

This license is subject to modification, suspension, or cancelation. It may be terminated by the Secretary of Agriculture any year should said warehouseman fail to furnish annually on or before _____ such bond for the ensuing year as is required by the act and regulations.

Done at Kansas City, Missouri, this _____ day of _____, 19

Witness my hand and the seal of the Department of Agriculture.

UNITED STATES DEPARTMENT OF AGRICULTURE

SAMPLE LICENSE

IN CHARGE, NATIONAL WAREHOUSE SERVICE CENTER
WAREHOUSE SERVICE BRANCH

Figure 2-6 This license certificate must be displayed by all warehousemen licensed under the Federal U.S. Warehouse Act. USDA Agricultural Stabilization and Conservation Service, Warehouse Division. ***Warning:*** This form of receipt may be issued only by U.S. Warehouse Act licensees. USDA has sole authority to place an order in behalf of the licensee, and all others are prohibited from reproducing the form for any use whatsoever.

2. The warehouse must submit a financial statement and have sufficient net worth when applying for a license.

3. The warehouseman must be bonded.

4. Authorized warehouse receipts must be issued (Figure 2-7). The warehouse receipt is a legal document in which the warehouseman acknowledges receipt of the grain.

5. Personnel are subject to investigation and must be experienced, capable, honest, with integrity, and competent to perform their duties.

6. Inspectors and weighers must be licensed (Figure 2-8).

7. Weight certificates must be issued.

8. Storage fees and policies must be posted (Figure 2-9).

The Ohio Grain and Feed Association Directory lists the grain warehousemen in Ohio who are licensed under the U.S. Warehouse Act.

(continued on page 38)

Figure 2-7 Warehouse receipt (right) used by federally licensed grain warehousemen. Indorsement (below) is on the back. USDA Agricultural Stabilization and Conservation Service, Warehouse Division. (See ***warning*** under Figure 2-6.)

DEPOSITOR'S INDORSEMENT AND STATEMENT OF OWNERSHIP AND ENCUMBRANCES

The undersigned hereby indorses this receipt and certifies that on the date stated he is the owner of the grain covered by this receipt and, other than the warehouseman's lien shown on the face of this receipt, there are no liens, mortgages, or other encumbrances on said grain, except as stated hereon.

_____, 19____

Signed_____

LICENSE NUMBER 3-6246

RECEIPT

Nº 236

LICENSED AND BONDED UNDER THE UNITED STATES WAREHOUSE ACT

ORIGINAL NEGOTIABLE WAREHOUSE RECEIPT FOR GRAIN

RECEIVED FROM: _____ OF _____

For storage in the above-named warehouse in the course of Interstate or Foreign Commerce, grain of the quantity, kind, and grade described herein for which this receipt is issued subject to the United States Warehouse Act, the regulations thereunder for grain warehousemen, and the terms of this contract. Grade, according to U. S. official standards, and weight are as determined by an inspector and weigher licensed under said act. Said grain is FULLY INSURED by the undersigned warehouseman against loss or damage by fire, lightning, inherent explosion, tornado, cyclone, and windstorm unless otherwise stated hereon. Said grain is accepted upon condition that the depositor or holder of this receipt shall demand delivery not later than one year from the date of this receipt. The undersigned warehouseman is not the owner of said grain either solely, jointly, or in common with others unless otherwise stated hereon. Upon return of this receipt properly indorsed and payment of the warehouseman's lien claimed hereon, said grain or grain of the same or better grade will be delivered to the above named depositor or his ORDER.

Date Issued	Kind of Grain	Grade & Sub Class	Dock %	Lbs. of Gr. incl. Dock.	Gross Bushels	Net Pounds	Net Bushels

ISSUED AT

LICENSED WAREHOUSEMAN

BY_____

The Undersigned Warehouseman Claims A Lien On Said Grain For Charges And Liabilities As Follows:

STORAGE, INCLUDING INSURING AND RECEIVING: _____¢ PER BUSHEL PER DAY.

Elevation Chgs. Prepaid Per Bu.		Date Storage Pd. Through		
In @ ¢	Out @ ¢	Mo	Day	Yr.

Handling and other accrued charges according to the tariff of the company. Full amount of charges furnished on request.

The Issuance Of A Fraudulent Receipt, Or Illegal Conversion Or Removal Of The Products Represented By This Receipt Is Punishable By A $10,000 Fine Or Imprisonment For 10 Years Or Both.

SUPPLEMENTAL INFORMATION *For purposes of the Uniform Grain Storage Agreement only (Not part of Warehouse Receipt)*

Test Wt. Lbs.	Moisture %	Protein % Splits or Sounds	TD %	HD %	FM %	Shr. Brok. %	Fot. Def. %	Other Quality Factors	Car Initial and No.	Date Received Mo.	Day	Yr.	Received By Trk.	Brg.	Rail	Chgs.	Type Stg.	Area	Loan/Purchase No.

FOR CCC USE ONLY

BEST COPY AVAILABLE

WA-97
(01-17-86)

UNITED STATES DEPARTMENT OF AGRICULTURE

UNITED STATES WAREHOUSE ACT

LICENSE NO. 3-9999

GRADY WHEAT

is hereby licensed in accordance with the United States Warehouse Act and the regulations for GRAIN warehousemen thereunder to INSPECT, GRADE AND WEIGH and to certificate the GRADE AND WEIGHT of GRAIN stored or to be stored in the following warehouse or warehouses licensed and bonded under said act and regulations:

BUCKEYE COMMUNITY ELEVATOR

HOMETOWN, OHIO

This license is subject to suspension or revocation as provided in said act and regulations, and automatically terminates as to any warehouse named herein whenever the license of such warehouse expires, is suspended, or revoked. (See sections 25 and 30 of Warehouse Act.)

Done at Kansas City, Missouri, this 4th day of March, 19__

Witness my hand and the seal of the Department of Agriculture.

SAMPLE LICENSE

CHIEF, UNITED STATES WAREHOUSE ACT
LICENSE BRANCH

Figure 2-8 Grain weighing and inspection certificate for federally licensed operator. USDA Agricultural Stabilization and Conservation Service, Warehouse Division.
Warning: Reproductions of this form for any use whatsoever are prohibited.

WA-372
(4-22-85)

U.S. DEPARTMENT OF AGRICULTURE
Agricultural Stabilization and Conservation Services
U.S. WAREHOUSE ACT

TARIFF FOR STORING AND HANDLING GRAIN
U.S. Licensed and Bonded Warehouseman

1. LICENSE NO.	2. WAREHOUSE
3-9999	Buckeye Community Elevator

3. LOCATION OF WAREHOUSE (TOWN & STATE)

Hometown, Ohio

All grain received is considered to be deposited for storage under the terms of the U. S. Warehouse Act, unless the owner of the grain, or the owner's agent, requests otherwise at or prior to the time of its receipt.

SERVICE 4	RATE 5
Storage & Insurance:	***Corn and soybeans:*** 3¢ per bushel plus 1/10¢ per bushel per day to September 1. Minimum charges in effect on September 1 will reapply. ***Wheat:*** 3¢ per bushel plus 1/10¢ per day to May 1. Minimum charges in effect May 1 will reapply.
Receiving Charges:	All grains: 7¢ per bushel.
Loading Out Charges:	All grains: 8¢ per bushel.
Special Provisions:	Receiving and loading out charges will be assessed only when depositor or holder of receipt orders grain delivered (loaded out).
Other Charges:	Charges for services that we are capable of performing, not listed herein, will be furnished on request, and will be commensurate with the nature of the grain and services required. Such services will be performed and charges assessed on the basis of prior arrangements with the depositor.
Special Contracts:	Subject to the approval of the U.S. Warehouse Act Administrator and the availability of storage space, we will contract for storage of a definite quantity of grain for a definite storage period at rates other than those provided above. Such rates, under the same conditions, will be made available to all depositors.

6. INSURANCE

All grain insured upon receipt for full market value at time of loss against loss or damage by fire, lightning, tornado, windstorm cyclone or inherent explosion.

7. This tariff effective March 4, 1987, and supersedes all previous tariffs.

U. S. LICENSED AND BONDED WAREHOUSEMAN

Buckeye Grain Company, Inc.

By: C. M. O'Board, Pres.

Figure 2-9 A sample copy of the tariff and storage fees for storing grain in a federally licensed warehouse. USDA Agricultural Stabilization and Conservation Service, Warehouse Division.

PROCEDURES FOR STORING GRAIN OFF-FARM

Storage Fees

When storage at a country or terminal elevator is secured, a price for storage is established and quoted by the elevator. These rates are usually subject to change without notice. Often a certain rate is quoted for the first few months and then a daily or monthly rate thereafter. An example given in Figure 2-10 shows the storage rates posted at one Ohio country elevator.

There may also be additional charges, such as for service or receiving and loading out. Storage fees will vary from one facility to another and from one time to another in the same elevator, so check your elevators for their charges and policies.

Sampling and Testing Grain

Public law requires that licensed grain warehousemen engage the services of a trained and certified agricultural commodity tester. Upon receipt of a shipment of grain from a producer, either for sale or storage, the tester will draw representative samples with a device approved by the Federal Grain Inspection Service.

One such device is the probe (Figure 2-11A), which comes in varying lengths depending upon the depth of the container being sampled. A diverter type sampler may be installed either at the end of a conveyor belt or within a spout. The diverter passes through the flow of grain at timed intervals to collect samples. This is the most accurate method of obtaining representative samples. These samples will then be tested and the producer notified of the results of the

1986 GRAIN STORAGE RATES

Wheat

Free until August 1st

Starting August 1st 1/10 cent per bushel per day

No minimum charge

Corn and Soybeans

Twelve cents per bushel minimum until February 1st*

Warehouse Receipt Storage

Two cents per bushel charge and storage rates paid for 9 months

**Note that you would be paying the 12 cents per bushel minimum charge even though you sold the grain a few days after storage.*

Figure 2-10 Storage fees charged by one Ohio country elevator. Some elevators may have a load out charge for warehouse receipt storage.

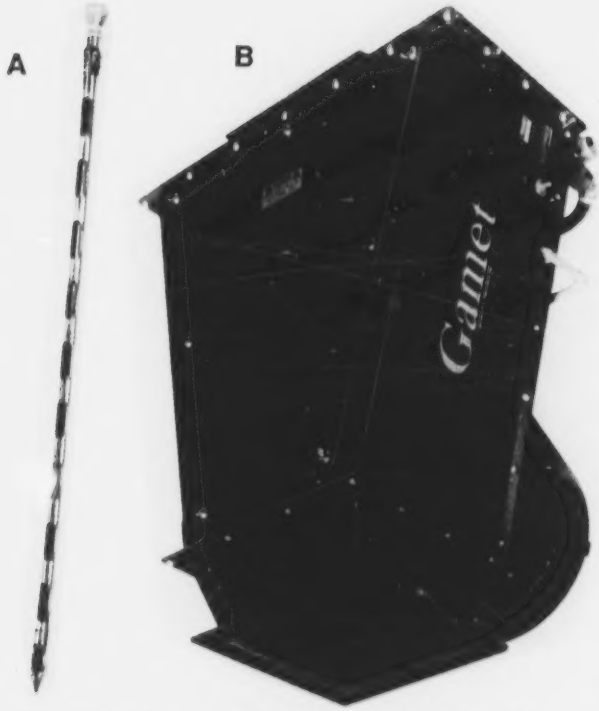


Figure 2-11 Sampling devices approved by the Federal Grain Inspection Service. A. Probe; B. Diverter.

test and of any price discount, premium, or conditioning charge that would alter the value of the grain. The producer then has three choices:

1. Refuse to sell or store the grain.

2. Agree to sell or store the grain and accept the test results and any price adjustments.

3. Agree to sell or store the grain but reject the tester's findings for the shipment. The producer can then order the sample to be forwarded immediately to a federally licensed grain inspector for another testing. The results of this test are final and are binding upon both parties. The losing party pays the cost of the testing.

   If either tester or producer feels that the first sample was not representative of the shipment, a second sample may be drawn.

The producer has the responsibility of guaranteeing that no grain shall be offered for sale or storage that:

1. Is treated with any poisonous material or contains rodent excreta or any other material in such amounts as to make the grain unfit for human or animal consumption. If even one kernel of treated grain is found, the entire shipment will be rejected.

2. Is knowingly or purposely loaded unevenly so as to conceal amounts of the grain that are inferior.

After the sample of grain from the shipment has been collected, it will be tested by the certified agricultural commodities tester. The inspector will establish the grade of the grain and determine any discounts that should be applied to the shipment.

Remember, it is your right as the seller to be shown the test results *before* you unload your grain. If you are careless about this and permit testing to be done after your grain is unloaded, there is no way your grain can be recalled from the elevator's storage bin if you are dissatisfied with the test.

Testing Procedures

The sample will be run through a divider (Figure 2-12) to obtain a thoroughly mixed representative sample. The grain is then emptied into two pans.

Using the following steps, the test weight per bushel will be determined. A measured amount of grain is taken from the sample and weighed. The standard container may be filled using a device such as the filling hopper and stand shown in Figure 2-13. Excess grain is removed from the top of the container using a prescribed strike-off stick. The sample is then weighed with either a hand-held scale or an electronic scale such as those shown in Figure 2-14. The electronic scale may also be used in weighing out other dockage contained in the sample.

An electronic moisture meter such as the one shown in Figure 2-15 will be used in determining the moisture content of the grain. An uncleaned sample will be used in making this determination.

Foreign material and damaged kernels will be separated and weighed on the scales to

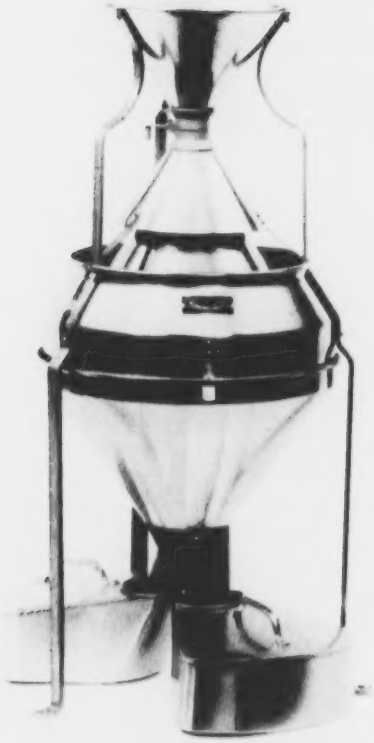
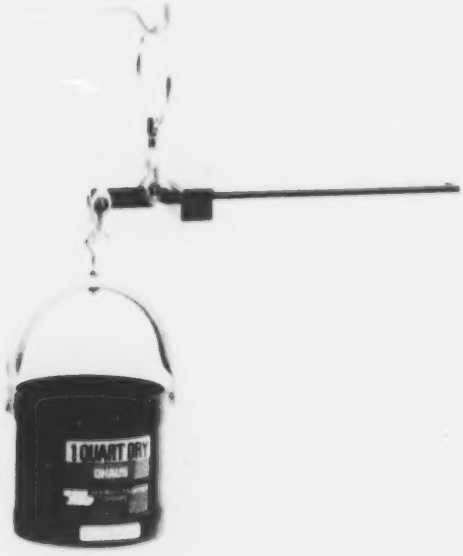


Figure 2-12 A Boerner divider used to obtain representative grain samples. (Seedburo Equipment Company product)

Figure 2-13 A filling hopper and stand used to fill a measured container for determining test weight per bushel. (Seedburo Equipment Company product)



A

B

Figure 2-14 Scales hand held (A) and electronic (B) are used in weighing measured samples to determine test weight per bushel. (Seedburo Equipment Company products)

Figure 2-15 An electronic moisture meter used in determining the moisture content of a grain sample. (Seedburo Equipment Company product)

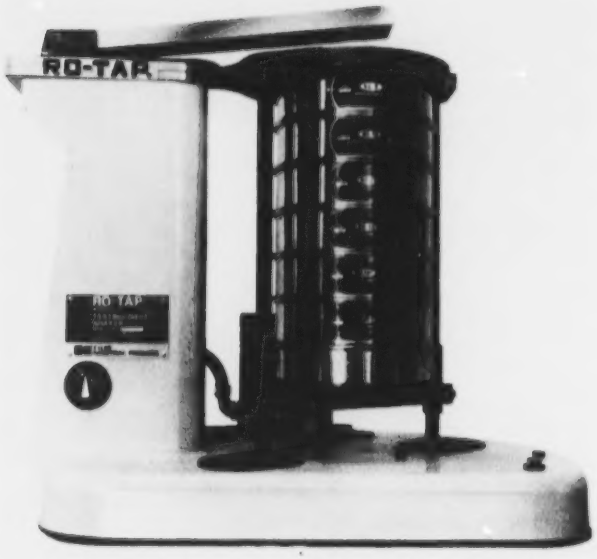


Figure 2-16 A mechanical shaking device that can be used to separate foreign material and damaged grain from the representative sample. (Seedburo Equipment Company product)

determine the percentage of such material in the sample. Sieves may be used in making this separation (Figure 2-16).

Grain Grades and Standards

As previously mentioned, one of the functions of marketing is to grade and standardize the product. Without this function, grain marketing as we know it today could not exist. Grading and standardization permits:

1. Price quotations on any U.S. standard grade such as No. 2 yellow corn. Without a standard of quality and quantity, price quotations would have little meaning and could not be compared with one another.

2. Title transfer either sight unseen or from a representative sample because each grade has specific tolerances regarding moisture, test weight, foreign material, other seeds, or other undesirable characteristics. This standardizing results in common understanding of quality of product by all domestic or foreign traders. It is possible for a buyer to purchase a product of other than standard grade with a corresponding change in price, as for example a foreign buyer desiring less foreign material (cracked corn in soybeans) than permitted in a specific grade.

3. Purchase of grain of different quality levels and payment based on quality. Farmer A delivers No. 2 yellow corn and Farmer B delivers moldy corn at a reduced price due to the quality difference.

4. Grain to be intermingled or mixed (blended) to form a homogeneous product (grade) recognized by buyers and sellers.

5. Sale of a specific quality or type of grain to meet a specific demand at a premium price; e.g., high protein hard red winter wheat or a specific variety of soybeans for special Japanese trade.

6. Financing - the farmer or elevator can secure a loan because of accurate estimate of value.

The USDA Federal Grain Inspection Service prepares the Official U.S. Standards for Grain. These standards are reviewed and revised as needed. The grades and standards in effect at the time of this writing are shown in the following figures: **Figure 2-17**. U.S. Standards for Corn, **Figure 2-18**. U.S. Standards for Soybeans, and **Figure 2-19**. U.S. Standards for Wheat.

(continued on page 45)

U.S. STANDARDS FOR CORN

Terms Defined

§ 810.401 Definition of corn.

Grain that consists of 50.0 percent or more of whole kernels of shelled dent corn and/or shelled flint corn (*Zea mays* L.) and not more than 10.0 percent of other grains for which standards have been established under the United States Grain Standards Act.

§ 810.402 Definition of other terms.

(a) *Classes.* There are three classes for corn: Yellow Corn, White Corn, and Mixed Corn.

(1) *Yellow Corn.* Corn that is yellow-kerneled and contains not more than 5.0 percent of corn of other colors. Yellow kernels of corn with a slight tinge of red and considered yellow corn.

(2) *White Corn.* Corn that is white-kerneled and contains not more than 2.0 percent of corn of other colors. White kernels of corn with a slight tinge of light straw or pink color are considered white corn.

(3) *Mixed Corn.* Corn that does not meet the color requirements for either of the classes Yellow Corn or White Corn and includes white-capped yellow corn.

(b) *Broken corn and foreign material.* All matter that passes readily through a 13/64 round-hole sieve and all matter other than corn that remains in the sieved sample after sieving according to procedures prescribed in FGIS Instructions.

(c) *Damaged kernels.* Kernels and pieces of corn kernels that are: badly ground-damaged, badly weather-damaged, diseased, frost-damaged, germ-damaged, heat-damaged, insect-bored, mold-damaged, sprout-damaged, or otherwise materially damaged.

(d) *Heat-damaged kernels.* Kernels and pieces of corn kernels that are materially discolored and damaged by heat.

(e) *Sieve—13/64 round-hole sieve.* A metal sieve 0.032 inch thick with round perforations 0.1875 (13/64) inch in diameter which are ¼ inch from center to center. The perforations of each row shall be staggered in relation to the adjacent row.

Principles Governing the Application of Standards

§ 810.403 Basis of determination.

Each determination of class, damaged kernels, heat-damaged kernels, flint corn, and flint and dent corn is made on the basis of the grain after the removal of the broken corn and foreign material. Other determinations not specifically provided for under the general provisions are made on the basis of the grain as a whole, except the determination of ordor is made on either the basis of the grain as a whole or the grain when free from broken corn and foreign material.

Grades and grade requirements for corn

Grade	Minimum test weight per bushel	Maximum limits of—		
		Broken corn and foreign material	Damaged Kernels	
			Total	Heat damaged kernels
	(Pounds)	*(Percent)*	*(Percent)*	*(Percent)*
U.S. No. 1	56.0	2.0	3.0	0.1
U.S. No. 2	54.0	3.0	5.0	0.2
U.S. No. 3	52.0	4.0	7.0	0.5
U.S. No. 4	49.0	5.0	10.0	1.0
U.S. No. 5	46.0	7.0	15.0	3.0

U.S. Sample grade—

U.S. Sample grade is corn that:

(a) Does not meet the requirements for the grades U.S. Nos. 1, 2, 3, 4, or 5; or

(b) Contains 8 or more stones which have an aggregate weight in excess of 0.2 percent of the sample weight, 2 or more pieces of glass, 3 or more crotalaria seeds (*Crotalaria* spp.), 2 or more castor beans (*Ricinus communis* L.), 8 or more cockleburs (*Xanthium* spp.) or similar seeds singly or in combination, 4 or more particles of an unknown foreign substance(s) or a commonly recognized harmful or toxic substance(s), 2 or more roden pellets, bird droppings, or equivalent quantity of other animal filth per 1,000 grams of corn; or

(c) Has a musty, sour, or commercially objectionable foreign odor; or

(d) Is heating or otherwise of distinctly low quality.

Special Grades and Special Grade Requirements

§ 810.405 Special grades and special grade requirements.)

(a) *Flint corn.* Corn that consists of 95.0 or more of flint corn.

(b) *Flint and dent corn.* Corn that consists of a mixture of flint and dent corn containing more than 5.0 percent but less than 95.0 percent of flint corn.

(c) *Infested corn.* Corn that is infested with live weevils or other insects injurious to stored grain according to procedures prescribed in FGIS Instructions.

(d) *Waxy corn.* Corn that consists of 95.0 percent of more waxy corn, according to procedures prescribed in FGIS Instructions.

Figure 2-17 U.S. Standards for corn

Source: Federal Register, Oct. 2, 1986, Vol. 51, No. 191, pp. 35231-35232

U.S. STANDARDS FOR SOYBEANS

Terms Defined

§ 810.1601 Definition of soybeans.

Grain that consists of 50.0 percent or more of whole or broken soybeans (*Glycine max* (L.) Merr.) that will not pass through an 8/64 round-hole sieve and not more than 10.0 percent of other grains for which standards have been established under the United States Grain Standards Act.

§ 810.1602 Definition of other terms.

(a) *Classes.* **There are two classes for soybeans: Yellow Soybeans and Mixed Soybeans.**

(1) *Yellow Soybeans.* **Soybeans that have yellow or green seed coats and which in cross section, are yellow or have a yellow tinge, and may include** not more than 10.0 percent of soybeans of other colors.

(2) *Mixed Soybeans.* Soybeans that do not meet the requirements of the class Yellow soybeans.

(b) *Damaged kernels.* Soybeans and pieces of soybeans that are: badly ground-damaged, badly weather-damaged, diseased, frost-damaged, germ-damaged, heat-damaged, insect-bored, mold-damaged, sprout-damaged, stinkbug-stung, or otherwise materially damaged. Stinkbug-stung kernels are considered damaged kernels at the rate of one-fourth of the actual percentage of the stung kernels.

(c) *Foreign material.* **All matter that passes through an 8/64 round-hole sieve and all matter other than soybeans remaining in the sieved sample after sieving according to procedures prescribed in FGIS Instructions.**

(d) *Heat-damaged kernels.* Soybeans and pieces of soybeans that are materially discolored and damaged by heat.

(e) *Purple mottled or stained.* Soybeans that are discolored by the growth of a fungus; or by dirt; or by dirt-like substance(s) including nontoxic inocculants; or by other nontoxic substances.

(f) *Soybeans of other colors.* Soybeans that have green, black, brown, or bicolored seed coats. Soybeans that have green seed coats will also be green in cross section. Bicolored soybeans will have seed coats of two colors, one of which is brown or black, and the brown or black color shall cover 50 percent of the seed coats. The hilum of a soybean is not considered a part of the seed coat for this determination.

(g) *Sieve—8/64 round-hold sieve.* A metal sieve 0.032 inch thick perforated with round holes 0.125 (8/64) inch in diameter with approximately 4,736 perforations per square foot.

(h) *Splits.* Soybeans with more than ¼ of the bean removed and that are not damaged.

Principles Governing the Application of Standards

§ 810.1603 Basis of determination.

Each determination of class, heat-damaged kernels, damaged kernels, splits, and soybeans of other colors is made on the basis of the grain when free from foreign material. Other determinations not specifically provided for under the general provisions are made on the basis of the grain as a whole.

Grades and grade requirements for soybeans

The following grades and grade requirements are applicable under these standards. In Mixed soybeans, the factor "soybeans of other colors" will be disregarded.

Grade	Minimum test weight per bushel	Maximum limits of—				
		Splits	Damaged kernels		Foreign material	Soybeans of other colors
			Total	Heat damaged		
	(pounds)	*percent*	*(percent)*	*(percent)*	*(percent)*	*(percent)*
U.S. No. 1	56.0	10.0	2.0	0.2	1.0	1.0
U.S. No. 2	54.0	20.0	3.0	0.5	2.0	2.0
U.S. No. 3[1]	52.0	30.0	5.0	1.0	3.0	5.0
U.S. No. 4[2]	49.0	40.0	8.0	3.0	5.0	10.0

U.S. Sample grade:

U.S. Sample grade shall be soybeans which:

(a) Do not meet the requirements for U.S. Nos. 1, 2, 3, or 4; or

(b) Contain 8 or more stones that have an aggregate weight in excess of 0.2 percent of the sample weight, 2 or more pieces of glass, 3 or more Crotalaria seeds (*Crotalaria* spp.), 2 or more castor beans (*Ricinus communis* L.), 4 or more particles of an unknown foreign substance(s) or a commonly recognized harmful or toxic substance(s), 2 or more rodent pellets, bird droppings, or equivalent quantity of other animal filth per 1,000 grams of soybeans; or

(c) Have a musty, sour, or commercially objectionable foreign odor (except garlic odor); or

(d) Are heating or otherwise of distinctly low quality.

[1] Soybeans that are purple mottled or stained are graded not higher than U.S. No. 3.

[2] Soybeans that are materially weathered are graded not higher than U.S. No. 4.

Special Grades and Special Grade Requirements

§ 810.1605 Special grades and special grade requirements.

(a) *Garlicky soybeans.* **Soybeans that contain 5 or more green garlic bulblets or an equivalent quantity of dry or partly dry bulblets in a 1,000 gram portion.**

(b) *Infested soybeans.* **Soybeans that are infested with live weevils or other insects injurious to stored grain according to procedures prescribed in FGIS Instructions.**

Figure 2-18 U.S. Standards for soybeans

Source: Federal Register, Oct. 2, 1986, Vol. 51, No. 191, pp. 35235-35236

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Terms Defined

§ 810.2201 Definition of wheat.

Grain that, before the removal of dockage, consists of 50.0 percent or more common wheat (*Triticum aestivum* L.), club wheat (*T. compactum* Host.), and durum wheat (*T. durum* Desf.) and not more than 10.0 percent of other grains for which standards have been established under the United States Grain Standards Act and that, after the removal of the dockage, contains 50.0 percent or more of whole kernels of one or more of these wheats.

§ 810.2202 Definition of other terms.

(a) *Classes.* There are seven classes for wheat: Durum Wheat, Hard Red Spring Wheat, Hard Red Winter Wheat, Soft Red Winter Wheat, White Wheat, Unclassed Wheat, and Mixed Wheat.

(1) *Durum Wheat.* All varieties of white (amber) durum wheat. This class is divided into the following three subclasses:

(i) *Hard Amber Durum Wheat.* Durum wheat with 75.0 percent or more of hard and vitreous kernels of amber color.

(ii) *Amber Durum Wheat.* Durum Wheat with 60.0 percent or more but less than 75 percent of hard and vitreous kernels of amber color.

(iii) *Durum Wheat.* Durum wheat with less than 60.0 percent of hard and vitreous kernels of amber color.

(2) *Hard Red Spring Wheat.* All varieties of hard red spring wheat. This class shall be divided into the following three subclasses:

(i) *Dark Northern Spring Wheat.* Hard red spring wheat with 75.0 percent or more of dark, hard, and vitreous kernels.

(ii) *Northern Spring Wheat.* Hard red spring wheat with 25.0 percent or more but less than 75.0 percent of dark, hard, and vitreous kernels.

(iii) *Red Spring Wheat.* Hard red spring wheat with less than 25.0 percent of dark, hard, and vitreous kernels.

(3) *Hard Red Winter.* Wheat. All varieties of hard red winter wheat. There are no subclasses in this class.

(4) *Soft Red Winter Wheat.* All varieties of soft red winter wheat. There are no subclasses in this class.

(5) *White Wheat.* All varieties of white wheat. This class is divided into the following four subclasses:

(i) *Hard White Wheat.* White wheat with 75.0 percent or more of hard kernels. It may contain not more than 10.0 percent of white club wheat.

(ii) *Soft White Wheat.* White wheat with less than 75.0 percent of hard kernels. It may contain not more than 10.0 percent of white club wheat.

(iii) *White Club Wheat.* White club wheat containing not more than 10.0 percent of other white wheat.

(iv) *Western White Wheat.* White wheat containing more than 10.0 percent of white club wheat and more than 10.0 percent of other white wheat.

(6) *Unclassed Wheat.* Any variety of wheat that is not classifiable under other criteria provided in the wheat standards. There are no subclasses in this class. This class includes:

(i) Red Durum wheat.

(ii) Any wheat which is other than red or white in color.

(7) *Mixed Wheat.* Any mixture of wheat that consists of less than 90.0 percent of one class and more then 10.0 percent of one other class, or a combination of classes that meet the definition of wheat.

(b) *Contrasting classes.* Contrasting classs are:

(1) Durum Wheat, White Wheat, and Unclassed Wheat in the classes Hard Red Spring Wheat and Hard Red Winter Wheat.

(2) Hard Red Spring Wheat, Hard Red Winter Wheat, Soft Red Winter Wheat, White Wheat, and Unclassed Wheat in the class Durum Wheat.

(3) Durum Wheat and Unclassed Wheat in the class Soft Red Winter Wheat.

(4) Hard Red Spring Wheat, Durum Wheat, Hard Red Winter Wheat, and Unclassed Wheat in the class White Wheat.

(c) *Damaged kernels.* Kernels, pieces of wheat kernels, and other grains that are: badly ground-damaged, badly weather-damaged, diseased, frost-damaged, germ-damaged, heat-damaged, insect-bored, mold-damaged, sprout-damaged, or otherwise materially damaged.

(d) *Defects.* Damaged kernels, foreign material, and shrunken and broken kernels. The sum of these three factors may not exceed the limit for the factor Defects for each numerical grade.

(e) *Dockage.* All matter other than wheat that can be removed from the original sample by use of an approved device according to procedures prescribed in FGIS Instructions. Also, underdeveloped, shriveled, and small pieces of wheat kernels removed in properly separating the material other than wheat and that cannot be recovered by properly rescreening or recleaning.

(f) *Foreign material.* All matter other than wheat that remains in the sample after the removal of dockage and shrunken and broken kernels.

(g) *Heat-damaged kernels.* Kernels, pieces of wheat kernels, and other grains that are materially disclored and damaged by heat which remain in the sample after the removal of dockage and shrunken and broken kernels.

(h) *Other grains.* Barley, corn, cultivated buckwheat, einkorn, emmer, flaxseed, guar, hull-less barley, nongrain sorghum, oats, Polish wheat, popcorn, poulard wheat, rice rye, safflower, sorghum, soybeans, spelt, sunflower seed, sweet corn, triticale, and wild oats.

(i) *Shrunken and broken kernels.* All matter that passes through a 0.064 x ⅜ oblong-hole sieve after sieving according to procedures prescribed in the FGIS Instructions.

(j) *Sieve—0.064 x ⅜ oblong-hole sieve.* A metal sieve 0.032 inch thick with oblong perforations 0.064 inch by 0.375 (⅜) inch.

Principles Governing Application of Standards

§ 810.2203 Basis of determination.

Each determination of heat-damaged kernels, damaged kernels, foreign material, other classes, contrasting classes, and subclasses is made on the basis of the grain when free from dockage and shrunken and broken kernels. Other determinations not specifically provided for under the general provisions are made on the basis of the grain when free from dockage, except the determination of odor is made on either the basis of the grain as a whole or the grain when free from dockage.

Grades and Grade Requirements

See table on page 68

(b) *Grades and grade requirements for Mixed Wheat.* Mixed Wheat is graded according to the U.S. numerical and U.S. Sample grade requirements of the class of wheat that predominates in the mixture, except that the factor wheat of other classes is disregarded.

Special Grades and Special Grade Requirements

§ 810.2205 Special grades and special grade requirements.

(a) *Ergoty wheat.* Wheat that contains more than 0.30 percent of ergot.

(b) *Garlicky wheat.* Wheat that contains in a 1,000 grams portion more than two green garlic bulblets or an equivalent quantity of dry or partly dry bulblets.

(c) *Infested wheat.* Wheat that is infested with live weevils or other insects injurious to stored grain according to procedures prescribed in FGIS Instructions.

(d) *Light smutty wheat.* Wheat that has an unmistakable odor of smut, or which contains in a 250 gram portion, smut balls, portions of smut balls, or spores of smut in excess of a quantity equal to 14 smut balls, but not in excess of a quantity equal to 30 smut balls of average size.

(e) *Smutty wheat.* Wheat that contains, in a 250 gram portion, smut ball, portions of smut balls, or spores of smut in excess of a quantity equal to 30 smut balls of average size.

(f) *Treated wheat.* Wheat that has been scoured, limed, washed, sulfured, or treated in such a manner that the true quality is not reflected by either the numerical grades or the U.S. Sample grade designation alone.

Figure 2-19 U.S. Standards for wheat

Source: Federal Register, Oct. 2, 1986, Vol. 51, No. 191, pp. 35238-35239

Since these grades and standards are subject to change from time to time, you may want to obtain the latest standards from the Federal Grain Inspection Service (see references for address).

A recent change in the Official U.S. Standards for Grain removes moisture as a factor in grade determination. Note in the preceding grain grade requirement charts that there is no longer a column for moisture content. This may cause some confusion when you sell your grain, since the buyer will still test for the moisture content of your grain. It is understandable that your grain buyer would not want to pay you for excess water in your grain. However, excess moisture will no longer reduce the grade of your grain.

Discounts

The price quoted for a bushel of grain will be the price for a bushel of standard grade of that grain. If your grain, for any reason, does not meet these standards, the grain will be discounted or you will receive less than the quoted price. If you understand the discounts and the reasons for them, you can be sure you are receiving the correct price from the elevator. Hopefully, you can manage your production and harvesting in such a way as to keep discounts to a minimum. The following are some of the most important discounts for grain.

MOISTURE DISCOUNTS - GRAIN SHRINKAGE

Moisture discounts ordinarily are higher than any other discounts and cause the most misunderstanding between farmers and elevator managers.

In the grain trade and through government standards, moisture levels are established above which discounts are applied. These are:

No. 2 yellow corn	15.0%
No. 2 soft red wheat	13.5%
No. 1 yellow soybeans	13.0%

Discounts are applied for moisture in grain because the excess water in the grain is of no value to the elevator and must be removed before storing. This creates a loss in weight. The drying of the grain requires labor, equipment and heat energy which must be paid for by the farmer.

When high moisture grain is handled and shrunk to a dry basis, there are two types of losses which occur: **moisture loss** and **dry matter loss**. The moisture loss is obvious but the dry matter loss is often misunderstood. This dry matter loss comes from handling and is unavoidable during the drying process. (This happens also if drying is done on the farm.) These losses come from:

Removal of chaff
Bee's wings (corn)
Parts of tip caps
Fine parts of cracked kernels
Dust caused by rubbing and polishing

The grain shrinkage chart (Figure 2-20) shows the percentage of shrinkage when grain of excess moisture is dried to selected percentages of moisture. This chart assumes that dry matter losses amount to one-half of one percent in addition to the moisture loss. Country elevators may accept this dry matter loss or may show by their records that their losses are higher than this. Some elevators will also add more than the one-half percent of dry matter when corn is delivered at very high moisture levels because of extra amounts of broken kernels and fine particles created in the drying process.

Example:

How many pounds shrinkage will there be from a load of 13,680 pounds of grain that is dried from 24.5% to 15.0% moisture? (Use shrinkage chart, Figure 2-20.)

13,680 x 0.1168 (factor from table) =
1,597.8 lb. shrinkage

Your elevator may use a different shrinkage chart in determining the moisture discounts. You will need to refer to their discount sheet to determine the amount of shrinkage in your grain.

DISCOUNTS OTHER THAN FOR MOISTURE

Test Weight

The government has established certain official weights for a bushel of grain. When a bushel of grain does not equal this weight, some condition of growth or harvest has made it inferior. It is, therefore, not worth as much to the miller, processor or other user of this grain. The weights below which grains will be discounted are:

Grain	Official Weight	Minimum Weight	
Wheat	60 lb.	No. 2	57 lb.
Corn	56 lb.	No. 2	54 lb.
Soybeans	60 lb.	No. 2	54 lb.

Foreign Material

Foreign material may be anything that does not belong in the sample of grain. This might be other grains (such as rye in wheat or corn in soybeans), weed seed, sticks or stones. All these

GRAIN SHRINKAGE CHART

Percentage Shrinkage When a Unit of Grain Is Dried to Selected Percentages of Moisture*

Percentage Moisture In Grain	Percentage of Shrinkage When Grain Is Dried to: 13.0% Col. 1	13.5% Col. 2	14.0% Col. 3	14.5% Col. 4	15.0% Col. 5	15.5% Col. 6
13.0	0	0	0	0	0	0
13.5	1.07	0	0	0	0	0
14.0	1.65	1.08	0	0	0	0
14.5	2.22	1.66	1.08	0	0	0
15.0	2.80	2.23	1.66	1.09	0	0
15.5	3.37	2.81	2.24	1.67	1.09	0
16.0	3.95	3.39	2.83	2.25	1.68	1.09
16.5	4.52	3.97	3.41	2.84	2.26	1.68
17.0	5.10	4.55	3.99	3.42	2.85	2.28
17.5	5.67	5.12	4.57	4.01	3.44	2.87
18.0	6.25	5.70	5.15	4.59	4.03	3.46
18.5	6.82	6.28	5.73	5.18	4.62	4.05
19.0	7.40	6.86	6.31	5.76	5.21	4.64
19.5	7.97	7.44	6.90	6.35	5.79	5.23
20.0	8.55	8.01	7.48	6.93	6.38	5.83
20.5	9.12	8.59	8.06	7.52	6.97	6.42
21.0	9.70	9.17	8.64	8.10	7.56	7.01
21.5	10.27	9.75	9.22	8.69	8.15	7.60
22.0	10.84	10.33	9.80	9.27	8.74	8.19
22.5	11.42	10.90	10.38	9.86	9.32	8.78
23.0	11.99	11.48	10.97	10.44	9.91	9.38
23.5	12.57	12.06	11.55	11.03	10.50	9.97
24.0	13.14	12.64	12.13	11.61	11.09	10.56
24.5	13.72	13.22	12.71	12.20	11.68	11.15
25.0	14.29	13.79	13.29	12.78	12.26	11.74
25.5	14.87	14.37	13.87	13.37	12.85	12.33
26.0	15.44	14.95	14.45	13.95	13.44	12.93
26.5	16.02	15.53	15.03	14.54	14.03	13.52
27.0	16.59	16.11	15.62	15.12	14.62	14.11
27.5	17.17	16.68	16.20	15.70	15.21	14.70
28.0	17.74	17.26	16.78	16.29	15.79	15.29
28.5	18.32	17.84	17.36	16.87	16.38	15.88
29.0	18.89	18.42	17.94	17.46	16.97	16.48
29.5	19.47	19.00	18.52	18.04	17.56	17.07
30.0	20.04	19.58	19.10	18.63	18.15	17.66
30.5	20.61	20.15	19.69	19.21	18.74	18.25

*All of the above percentages of shrinkage figures include actual moisture loss plus one-half percent for dry matter loss.
The percentage of shrinkage may be applied to pounds, bushels, tons and all other units of quantity.

Figure 2-20 Grain shrinkage chart. *Source:* Ross Milner, *How to Determine Shrinkage in Grain*, Bulletin 425, Cooperative Extension Service, Ohio State University

materials add weight to the load but are of no value in the elevator.

Shrunken and Broken Kernels

A damaged kernel does not have the feed quality or milling qualities of sound grain. For high quality products, these materials must be screened out. An extra cleaning is required, with resulting loss in weight.

Musty, Heating, Sour, Insects

All these conditions often require that the grain be used for livestock feed which brings a lower price than the regular milling trades.

Treated Grain

Any grain treated with a poisonous substance will be rejected. No tolerance is allowed. One treated kernel in an entire shipment will cause rejection of the lot.

Others

Some other common defects in grain which make it less valuable are: splits in soybeans, off-colored soybeans, off classes in wheat, and smutty or garlicky wheat.

Corn Grading Procedure

1. ***Draw a representative sample*** (about 2,000 grams).
   Probe the truck in five or more places for best results (Figure 2-21).

Figure 2-21 Taking a sample of grain from a truckload

2. ***Mix sample thoroughly.***
   Cut down the sample over the divider for uniformity. It is important to have a well-mixed and uniform sample.

3. ***Test weight per bushel.***

   a. Use half of the sample or approximately 1,000 grams for test weight per bushel. Test weight shall be determined before removal of foreign material.
   b. The filling and stroking of the kettle should be accomplished without jarring. Be certain that the equipment is on a firm and solid base.
   c. The stroking is to be done cleanly with three full-length zigzag motions with the regulation stroker held firmly on the kettle with its sides in a vertical position.

4. ***Determine foreign material.***

   a. Take the portion of corn used for test weight including the overflow in the bottom pan. Weigh and screen the entire amount over the 12/64 sieve.
   b. Put approximately 250 grams of corn on the 12/64 sieve each time; sieve back and forth thirty round trips or until fine material is extracted.
   c. Any particles of cobs and matter other than corn that do not pass through the sieve shall be included as foreign material.
   d. Repeat each operation until you have screened the entire half sample and then weigh foreign material.

grams of foreign material ÷ grams sieved = foreign material percent

5. ***Determine damage.***

   a. Cut down portion over divider three times – 500, 250, 125 grams
   b. Damage should be picked on 125 grams or more. Weigh accurately the amount used for separation.
   c. Make separation of all damaged kernels. Weigh damage separation.

   Example: If you picked 125 grams for damage and you weighed back 15.9 grams damaged kernels:

grams of damaged kernels (15.9)
+ grams in sample (125) =
0.1272 damage

(To show percentage, move decimal point two places to the right and show in even tenths - 12.7%)

d. In new corn, usually, the only damage percentage will be cob-rot, pink mold or blue mold.
e. Heat damage occurs when the corn has been heating. A distinct mahogany color is over the entire area of the kernel. All other damages are considered as total damage.

6. ***Determine moisture.***

Follow the manufacturer's instructions and weigh the sample exactly to specified amount. Be sure to take temperature correction that instructions call for. Moisture should be determined on uncleaned sample.

7. ***Check for musty, heating, sour and commercially objectionable foreign odors.***

a. Musty, heating and sour corn usually is caused by too high moisture, high temperature, or both. Mold and rapid deterioration result.
b. "Objectionable foreign odor" is any objectionable odor such as chemical odor, dead rodents, etc.

8. ***Practice using corn discount sheets.***

Corn is generally priced as No. 2 corn since this grade is the one most commonly marketed. However, grades are not usually discussed with producers as much as the discounts and, in some cases, premiums.

Secure shrinkage schedules and drying charges (often referred to as *discount sheets*) from your local elevator to study along with the standards for corn. A sample discount sheet for corn used by a Central Ohio terminal elevator is included in Figure 2-22. Discount sheets are subject to change and will often differ from one elevator to another.

As an example, assume you delivered to your elevator a load of corn that weighed 10,000 pounds. The quoted price for corn is $2.07 per bushel. Using the Corn Discount Sheet in Figure 2-22, determine the net value of your load of corn.

Your corn tested 22% moisture
Your corn graded as follows:

Test weight/bu	53.5 lb
Foreign material	3.5%
Damage	6.0%

Bushels of wet corn
10,000 lb ÷ 56 = 178.57 bu
Drying cost
$0.205 x 178.57 bu = $36.61

Discount Items	**Amount of Discount/ bushel**
Test weight/bu - 53.5 lb	0.01
Foreign material - 3.5%	0.01
Damaged grain - 6%	0.01
Total discount	0.03

Net price $2.07 - $0.03	=	$2.04
Pounds shrinkage 10,000 lb x .10	=	1,000 lb shrinkage
Pounds dry corn 10,000 lb – 1,000 lb	=	9,000 lb dry corn
Bushels dry corn 9,000 lb ÷ 56	=	160.7 bushels dry corn
Net value dry corn 160.7 bu x $2.04 net price	=	$327.83
Net value of load $327.83 - $36.61 drying charge	=	$291.22
Cost of drying per dry bushel		
$36.61 ÷ 160.7 dry bu	=	$0.228 per bu

Figure 2-22 CORN DISCOUNT SHEET
(for all corn delivered by **truck**)

Base Grade: No. 2 Yellow Corn, 54# T.W., 15.0% Moisture, 5.0% Damage, 0.2% Heat Damage, 3.0% Foreign Material

CASH AND DELAYED PRICE

SHRINK AND DRY SCHEDULE

Moisture	Shrinkage	Drying Charge per Wet Bushel
15.1 to 15.5	1.0	–1¢
15.6 to 16.0	1.6	–2 1/2¢
16.1 to 16.5	2.3	–4¢
16.6 to 17.0	2.9	–5 1/2¢
17.1 to 17.5	3.6	–7¢
17.6 to 18.0	4.3	–8 1/2¢
18.1 to 18.5	5.0	–10¢
18.6 to 19.0	5.7	–11 1/2¢
19.1 to 19.5	6.4	–13¢
19.6 to 20.0	7.1	–14 1/2¢
20.1 to 20.5	7.8	–16¢
20.6 to 21.0	8.5	–17 1/2¢
21.1 to 21.5	9.3	–19¢
21.6 to 22.0	10.0	–20 1/2¢
22.1 to 22.5	10.8	–22¢
22.6 to 23.0	11.6	–23 1/2¢
23.1 to 23.5	12.4	–25¢
23.6 to 24.0	13.2	–26 1/2¢
24.1 to 24.5	14.0	–28¢
24.6 to 25.0	14.8	–29 1/2¢

SHRINK AND DRY SCHEDULE (cont.)

Moisture	Shrinkage	Drying Charge per Wet Bushel
25.1 to 25.5	15.6	–31¢
25.6 to 26.0	16.4	–32 1/2¢
26.1 to 26.5	17.2	–34¢
26.6 to 27.0	18.0	–35 1/2¢
27.1 to 27.5	18.8	–37¢
27.6 to 28.0	19.6	–38 1/2¢
28.1 to 28.5	20.4	–40¢
28.6 to 29.0	21.2	–41 1/2¢
29.1 to 29.5	22.0	–43¢
29.6 to 30.0	22.8	–44 1/2¢
30.1 to 30.5	23.6	–46¢
30.6 to 31.0	24.4	–47 1/2¢
31.1 to 31.5	25.2	–49¢
31.6 to 32.0	26.0	–50 1/2¢
32.1 to 32.5	26.8	–52¢
32.6 to 33.0	27.6	–53 1/2¢
33.1 to 33.5	28.4	–55¢
33.6 to 34.0	29.2	–56 1/2¢
34.1 to 34.5	30.0	–58¢
34.6 to 35.0	30.8	–59 1/2¢

TEST WEIGHT

53.9 to 53.0	–1¢
52.9 to 52.0	–2¢
51.9 to 51.0	–3¢
50.9 to 50.0	–4¢
49.9 to 49.0	–6¢
48.9 to 48.0	–8¢
below 48.0	market

DAMAGE

5.1 to 6.0	–1¢
6.1 to 7.0	–2¢
7.1 to 8.0	–4¢
8.1 to 9.0	–6¢
9.1 to 10.0	–8¢
over 10.0	market

FOREIGN MATERIAL

3.1 to 4.0	-1¢
4.1 to 5.0	-3¢
5.1 to 6.0	-5¢
6.1 to 7.0	-7¢
7.1 to 8.0	-9¢
over 8.0	market

OTHER DISCOUNTS

Musty	-5¢
Weevily	-5¢
Heating	-10¢
Hot	-15¢
Sour	-15¢

HEAT DAMAGE

0.3 to 0.5	–2¢
0.6 to 1.0	–4¢
1.1 to 1.5	–6¢
1.6 to 2.0	–8¢
2.1 to 2.5	–10¢
2.6 to 3.0	–12¢
over 3.0	market

Corn grading **sample grade** will be subject to rejection or discounted as market conditions warrant.

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Corn Discounts for Moisture

Elevators must dry high moisture corn received by them and deduct charges for this from the payment to the farmer for that grain. However, in Ohio, there is no standard procedure for computing drying charges or for shrinking the grain. The next few illustrations will show some of the ways in which this is done. The procedure may differ enough from one elevator to another that you, as producer of the grain, will want to choose the best marketing facility for your needs and thereby gain several cents per bushel. Your local elevator may have a different system from any of these illustrated, so be sure to secure discount sheets from your local elevator for comparison. These discounts may also vary from one year to another and may change during the harvesting period.

In this discussion and in other parts of this manual the following definitions, which are standard in corn marketing, will apply:

- Dry corn - corn which has 15% moisture or less
- Wet corn - corn which has over 15% moisture
- Dry bushel of shelled corn - 56 pounds of corn at 15.0% moisture or less
- Wet bushel of shelled corn - 56 pounds of corn at any moisture level above 15.0%

In the illustrations for the various elevators, we will assume delivery of a load of shelled corn weighing 11,200 pounds with a moisture content of 22.5%. We will also assume the local cash market price of $2.20 per bushel. This survey was conducted in 1976. However, the same kinds and amounts of variations in charges exist today. The corn in these examples was dried to 15.5% moisture.

ELEVATOR A

This elevator lists on discount sheets the total weight of wet corn needed before drying down, to equal one bushel of dry corn (Figure 2-23). The drying charge is listed on a dry bushel. It is the charge for drying the given number of pounds down to 56 pounds at 15.5% moisture.

For example, the conversion table of Figure 2-23 shows that Elevator A needs 62.5 pounds of wet corn at 22.5% moisture to equal 56 pounds of dry corn. For this quantity there is also a drying charge of 8.5 cents per bushel. Computation would be as follows:

Determine gross value of load

11,200 lb ÷ 62.5 = 179.2 bushels of dry corn
179.2 x $2.20 = $394.24 gross value of load

Determine net value of load

179.2 x $.085 = $15.23 drying charge
$394.24 - $15.23 = $379.01 net value of load

ELEVATOR B

Elevator B uses the practice of shrinking the number of pounds of wet corn a certain percentage according to the moisture content of the corn. Drying charge is for a dry bushel.

Using the discount sheet for Elevator B (Figure 2-24), we notice that grain of moisture tests over 22.0% and up to 22.5% are shrunk 10.1% and the drying charge is 8 cents per dry bushel. Computation would be done as follows for Elevator B.

Determine gross value of load

11,200 lb x 10.1% = 1,131.2 lb shrink
11,200 - 1,131.2 = 10,068.8 lb dry corn
10,068 ÷ 56 = 179.8 bushels dry corn
179.8 x $2.20 = $395.56 gross value of load

Determine net value of load

179.8 x $0.08 drying charge = $14.38 drying charge
$395.56 - $14.38 = $381.18 net value of load

ELEVATOR C

The following system of shrink and charging for drying is used by Elevator C:

- Compute wet bushels.
- Shrink wet bushels 1.3% for each percent of moisture over 15.5%.
- Charge for drying a certain fraction of a cent for each one-half percent of moisture over 15.5%. This charge varies during the

DRYING CHARGES FOR CORN

Moisture	Lbs. Wet Sh. Corn for 1 Bushel Dry	Drying Chg. Per Bu. Dry Wgt.	Moisture	Lbs. Wet Sh. Corn for 1 Bushel Dry	Drying Chg. Per Bu. Dry Wgt.
15.5% & less	56.0	.0¢	25.6% - 26.0%	66.0	12.0¢
15.6% - 16.0%	56.5	1.0¢	26.1% - 26.5%	66.5	12.5¢
16.1% - 16.5%	57.0	2.0¢	26.6% - 27.0%	67.0	13.0¢
16.6% - 17.0%	57.4	3.0¢	27.1% - 27.5%	67.5	13.5¢
17.1% - 17.5%	57.8	3.5¢	27.6% - 28.0%	68.0	14.0¢
17.6% - 18.0%	58.2	4.0¢	28.1% - 28.5%	69.0	15.0¢
18.1% - 18.5%	58.6	4.5¢	28.6% - 29.0%	69.5	15.5¢
18.6% - 19.0%	59.0	5.0¢	29.1% - 29.5%	70.0	16.0¢
19.1% - 19.5%	59.4	5.5¢	29.6% - 30.0%	70.5	16.5¢
19.6% - 20.0%	59.8	6.0¢	30.1% - 30.5%	71.1	17.0¢
20.1% - 20.5%	60.4	6.5¢	30.6% - 31.0%	71.7	17.5¢
20.6% - 21.0%	61.0	7.0¢	31.1% - 31.5%	72.3	18.0¢
21.1% - 21.5%	61.5	7.5¢	31.6% - 32.0%	72.9	18.5¢
21.6% - 22.0%	62.0	8.0¢	32.1% - 32.5%	73.5	19.0¢
22.1% - 22.5%	62.5	8.5¢	32.6% - 33.0%	74.1	19.5¢
22.6% - 23.0%	63.0	9.0¢	33.1% - 33.5%	74.7	20.0¢
23.1% - 23.5%	63.5	9.5¢	33.6% - 34.0%	75.3	20.5¢
23.6% - 24.0%	64.0	10.0¢	34.1% - 34.5%	75.9	21.0¢
24.1% - 24.5%	64.5	10.5¢	34.6% - 35.0%	76.5	21.5¢
24.6% - 25.0%	65.0	11.0¢	35.1% - 35.5%	77.1	22.0¢
25.1% - 25.5%	65.5	11.5¢	35.6% - 36.0%	77.7	22.5¢

.7# additional to convert to bushels for each ½% above 36%.
.5¢ additional drying charge each ½% above 36%.

DISCOUNTS PER DRY BUSHEL OTHER THAN FOR MOISTURE

Musty	5¢	**Hot**	10¢
Heating	7¢	**Weevily**	5¢
Sour	10¢		

Testweight		**Damaged Grain**	
53.9# - 53.0#	1¢	5.1% - 6.0%	1¢
52.9# - 52.0#	2¢	6.1% - 7.0%	2¢
51.9# - 51.0#	3¢	7.1% - 8.0%	3¢
50.9# - 50.0#	4¢	8.1% - 9.0%	4¢
49.9# - 49.0#	5¢	9.1% - 10.0%	5¢
48.9# - 48.0#	6¢	10.1% - 11.0%	6¢
plus 1¢ each 1# or fraction under 48.0#		plus 1¢ each additional 1% or fraction over 11.0%	

Foreign Material		**Heat Damage**	
3.1% - 4.0%	1¢	0.3% - 0.5%	1¢
4.1% - 5.0%	2¢	0.6% - 1.0%	2¢
5.1% - 6.0%	3¢	1.1% - 1.5%	3¢
6.1% - 7.0%	4¢	1.6% - 2.0%	4¢
7.1% - 8.0%	5¢	plus 1¢ each additional ½% over 2.0%.	
8.1% - 9.0%	6¢		
9.1% - 10.0%	7¢		
plus 1½ ¢ each additional 1% or fraction over 10.0%			

Figure 2-23 Discount sheets for shelled corn used by Elevator A.

	Shrink	Dry Charge		Shrink	Dry Charge
Up to 16.0%	1.0	.02	28.0%	17.8	.14
16.5	1.7	.02	28.5	18.5	.15
17.0	2.4	.03	29.0	19.2	.15
17.5	3.1	.03	29.5	19.9	.16
18.0	3.8	.04	30.0	20.6	.16
18.5	4.5	.04	30.5	21.3	.17
19.0	5.2	.05	31.0	22.0	.17
19.5	5.9	.05	31.5	22.7	.18
20.0	6.6	.06	32.0	23.4	.18
20.5	7.3	.06	32.5	24.1	.19
21.0	8.0	.07	33.0	24.8	.19
21.5	8.7	.07	33.5	25.5	.20
22.0	9.4	.08	34.0	26.2	.20
22.5	10.1	.08	34.5	26.9	.21
23.0	10.8	.09	35.0	27.6	.21
23.5	11.5	.09	35.5	28.3	.22
24.0	12.2	.10	36.0	29.0	.22
24.5	12.9	.10	36.5	29.7	.23
25.0	13.6	.11	37.0	30.4	.24
25.5	14.3	.11	37.5	31.1	.24
26.0	15.0	.12	38.0	31.8	.25
26.5	15.7	.13	38.5	32.5	.25
27.0	16.4	.13	39.0	33.2	.26
27.5	17.1	.14	39.5	33.9	.27
			40.0	34.6	.27

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Figure 2-24 Shrink weight of shelled corn due to moisture and drying charge – Elevator B.

season. We will assume a charge of one-half cent for each one-half percent of moisture over 15.5.

Computation is as follows:

Determine gross value of load

11,200 lb ÷ 56 = 200 wet bushels
22.5% – 15.5% = 7% excess moisture
7% x 1.3 = 9.1% shrink
200 wet bushels x 9.1% = 18.2 wet bushels shrink
200 – 18.2 = 181.8 dry bushels
181.8 x $2.20 = $399.96 gross value of load

Determine net value of load

7% excess moisture x 1/2 cent per 1/2% = $0.07 drying charge
181.8 x $0.07 = $12.73 drying charge
$399.96 – $12.73 = $387.23 net value of load

ELEVATOR D

This elevator has a charge per wet bushel which takes into consideration both the shrink and drying charges. They deal only in wet bushels. The Corn Discount Schedule for Elevator D is shown in Figure 2-25. Note that the discount amounts to 28 cents per bushel for corn at 22.1% to 22.5% moisture. Computation would be as follows:

Determine gross value of load

11,200 lb ÷ 56 = 200 wet bushels
200 x $2.20 = $440.00 gross value of load

Determine net value of load

200 x $0.28 = $56.00 drying and shrinkage charge
$440.00 – $56.00 = $384.00 net value of load

Since this elevator deals only in wet bushels, you would not find out your number of dry bushels nor would you know the net per bushel in dry bushels. To find these figures for comparison to other elevators, you could use the grain shrinkage table and compute as follows:

Determine number of dry bushels and drying charge per dry bushel

11,200 lb x 8.78% = 983.4 lb shrink
11,200 – 983.4 = 10,216.6 dry corn
10,216.6 ÷ 56 = 182.4 bushels dry corn
$384.00 ÷ 182.4 = $2.105 net per dry bushel
$2.20 – $2.105 = $0.095 drying charge per dry bushel

ELEVATOR E

Some elevators use the same procedure in shrinking corn as elevators A, B and C, but they list their drying charges as a charge per wet bushel. In these cases, they are listing a charge for taking 56 pounds of wet corn and drying it down to 15.5% moisture. This, of course, will yield less than 56 pounds of dry corn. The shelled corn shrinkage schedule and drying charges for one elevator which uses this system are shown in Figure 2-26 and listed as Elevator E.

One system of computation which could be used with Elevator E is as follows.

MOISTURE

15.6 - 16.0 =	2¢
16.1 - 16.5 =	4¢
16.6 - 17.0 =	6¢
17.1 - 17.5 =	8¢
17.6 - 18.0 =	10¢
18.1 - 18.5 =	12¢
18.6 - 19.0 =	14¢
19.1 - 19.5 =	16¢
19.6 - 20.0 =	18¢
20.1 - 20.5 =	20¢
20.6 - 21.0 =	22¢
21.1 - 21.5 =	24¢
21.6 - 22.0 =	26¢
22.1 - 22.5 =	28¢
22.6 - 23.0 =	30¢
23.1 - 23.5 =	32¢
23.6 - 24.0 =	34¢
24.1 - 24.5 =	36¢
24.6 - 25.0 =	38¢
25.1 - 25.5 =	40¢
25.6 - 26.0 =	42¢
26.1 - 26.5 =	44¢
26.6 - 27.0 =	46¢
27.1 - 27.5 =	48¢
27.6 - 28.0 =	50¢
28.1 - 28.5 =	52¢
28.6 - 29.0 =	54¢
29.1 - 29.5 =	56¢
29.6 - 30.0 =	58¢

DAMAGE

5.1 - 6.0 =	1¢
6.1 - 7.0 =	2¢
7.1 - 8.0 =	3¢
8.1 - 9.0 =	4¢
9.1 - 10.0 =	5¢
10.1 - 11.0 =	6¢
11.1 - 12.0 =	7¢
12.1 - 13.0 =	8¢
13.1 - 14.0 =	9¢
14.1 - 15.0 =	10¢

Market above 15%

TEST WEIGHT

53.9 - 53.0 =	½¢
52.9 - 52.0 =	1¢
51.9 - 51.0 =	1½¢
50.9 - 50.0 =	2¢
49.9 - 49.0 =	2½¢
48.9 - 48.0 =	3¢

FOREIGN MATERIAL

3.1 - 4.0 =	1¢
4.1 - 5.0 =	2¢
5.1 - 6.0 =	4¢
6.1 - 7.0 =	6¢
7.1 - 8.0 =	8¢
8.1 - 9.0 =	10¢
9.1 - 10.0 =	12¢

Market over 10%

MUSTY	– 5¢
WEEVILY	– 5¢
HEATING	–10¢
HOT	–15¢
SOUR	–15¢

HEAT DAMAGE

0.3 - 0.5 =	1¢
0.6 - 1.0 =	2¢
1.1 - 1.5 =	3¢
1.6 - 2.0 =	4¢

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Figure 2-25 Corn discount schedule for Elevator D.

Determine gross value of load

11,200 lb x 10% shrink = 1,120 lb shrink
11,200 - 1,120 = 10,080 lb dry corn
10,080 ÷ 56 = 180 bushels dry corn
180 x $2.20 = $396.00 gross value of load

Determine net value of load

11,200 lb ÷ 56 = 200 wet bushels
200 x $0.125 = $25.00 drying charge
$396.00 - $25.00 = $371.00 net value of load

Determine drying charge per dry bushel

$25.00 ÷ 180 = $0.14 drying charge per dry bushel

SUMMARY AND COMPARISON

A summary comparison of the five elevators discussed shows the following results with one load of 11,200 pounds of shelled corn at 22.5% moisture and a cash price of $2.20 per bushel. This comparison is assuming no other discounts.

Other comparisons made in this study showed some elevators figuring a net value for this load of corn lower than any of the five listed here. One elevator showed a net value of $359.48 for this load This entire comparison study is not influenced by the comparative cash price offered at the various elevators. The price offered was assumed the same at each elevator; therefore, the comparison was on shrink and dry schedules and moisture discounts only.

COMPARISON OF ELEVATORS A, B, C, D AND E

	Number of Dry Bushels	Drying Charge per Dry Bushel	Net Value of Load
Elevator A	179.2	$0.085	$379.01
Elevator B	179.8	0.08	381.18
Elevator C	181.8	0.07	387.23
Elevator D	182.4	0.095	384.00
Elevator E	180.0	0.14	371.00

Moisture	Shrinkage	Drying Charge Per Wet Bu.	Moisture	Shrinkage	Drying Charge Per Wet Bu.
15.6 to 16.0	1.0	0	25.6 to 26.0	15.6	16
16.1 to 16.5	1.6	1	26.1 to 26.5	16.4	17
16.6 to 17.0	2.3	2	26.6 to 27.0	17.2	18
17.1 to 17.5	2.9	3	27.1 to 27.5	18.0	19
17.6 to 18.0	3.6	4	27.6 to 28.0	18.8	20
18.1 to 18.5	4.3	5	28.1 to 28.5	19.6	21
18.6 to 19.0	5.0	6	28.6 to 29.0	20.4	22
19.1 to 19.5	5.7	7	29.1 to 29.5	21.2	23
19.6 to 20.0	6.4	8	29.6 to 30.0	22.0	24
20.1 to 20.5	7.1	9	30.1 to 30.5	22.8	25
20.6 to 21.0	7.8	10	30.6 to 31.0	23.6	26
21.1 to 21.5	8.5	11	31.1 to 31.5	24.4	27
21.6 to 22.0	9.3	12	31.6 to 32.0	25.2	28
22.1 to 22.5	10.0	12½	32.1 to 32.5	26.0	29
22.6 to 23.0	10.8	13	32.6 to 33.0	26.8	30
23.1 to 23.5	11.6	13½	33.1 to 33.5	27.6	31
23.6 to 24.0	12.4	14	33.6 to 34.0	28.4	32
24.1 to 24.5	13.2	14½	34.1 to 34.5	29.2	33
24.6 to 25.0	14.0	15	34.6 to 35.0	30.0	34
25.1 to 25.5	14.8	15½	35.1 to 35.5	30.8	35

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Figure 2-26 Shelled corn shrinkage schedule and drying charges – Elevator E.

Keep in mind that this comparison was made at only one time. At another time during the market season or in another year these figures may be different or even reversed. These figures are presented only to help you make your own comparisons. It is to your disadvantage on a wet bushel basis.

Range of Elevator Charges

A wide range of elevator charges has been reported from the Midwest. Charging procedures vary markedly from elevator to elevator. Storage rates may vary from $0.12 to $0.20 per bushel. Also, drying charges for corn may vary from $0.15 to $0.32 for removal of 10 points of moisture. The shrink factor set per point of moisture may be between 1.25% and 1.5%.

Some elevators reduce charges to encourage delivery while others increase charges to discourage delivery depending upon local demand. Most elevators' drying costs are levied against the wet bushels delivered. Only a few charge for dried bushels, an advantage to the producer.

After February most elevators report a daily or monthly charge for the remainder of the season with $0.02 per month being the most common.

Soybean Grading Procedure

1. ***Draw a representative sample*** (2 1/2 quarts).

   Probe the truck in five or more places, making sure to probe to the bottom of the load. When soybeans are in transit, the foreign material has a tendency to sift toward the bottom of the truck or car.

2. ***Mix sample thoroughly.***

   Cut down the sample over a Boerner divider which is used to mix the sample. In the case of soybeans, it is important to have a well mixed and uniform breakdown due to the foreign material which is the main grading factor.

3. ***Test weight per bushel.***

   a. Use half of the sample or approximately 1 1/8 to 1 1/4 quarts for test weight per bushel. Test weight shall be determined before removal of foreign material or any other grading factor that may affect its weight per bushel.
   b. Enough grain should be used to cause overflow on all sides of the kettle.
   c. The filling and stroking of the kettle should be accomplished without jarring. Be certain that the equipment is on a firm and solid base.
   d. The stroking is to be done cleanly with three full-length zigzag motions with the standard stroker held firmly on the kettle with its side in vertical position.

4. ***Determine foreign material, splits and damage.***

   a. Take half of the sample and cut this portion over the divider three times into portions of approximately 500, 250 and 125 grams. Weigh the small portion on a gram scale. It should be approximately 125 grams.
   b. Use sieves as follows: top screen 10/64 x 3/4 oblong, middle 8/64 round perforation, and bottom pan.
   c. Pour the cut down part, approximately 125 grams, on the stacked sieves. All splits will pass through this sieve. Corn, soybean pods and anything other than beans that remain on the top sieve should be hand-picked out of the cleaned beans and placed in the bottom pan.
   d. Hand separate all material other than whole soybeans or splits in the middle sieve and place in the bottom pan along with the weed seed and finer material which passed through the 8/64 screen. This should all be weighed together to determine the total foreign material percentage.
   e. Weigh the splits which remained on the 8/64 round perforated screen and divide this weight by the total amount of the separation less the grams deducted for foreign material to determine the percent of splits.
   f. Check for damage the whole beans and splits which remained on top of the two screens. Weigh the damaged grain and determine percent by dividing this weight by the total weight of the separation less the grams deducted for foreign material.

5. ***Determine percentage of foreign material, splits and damage.***

Example: Let's say you started with 141 grams of soybeans and the weight of the foreign material is 5.0 grams. Find the percentage of foreign material as follows:

Grams of foreign material (6.0) ÷
Grams in sample (141) = .0425

(To show percentage, move decimal two places to the right and show in even tenths - 4.3%.)

Deduct the number of grams used in the weight of the foreign material (6 grams) from the 141 grams. The result will be 135 grams for the percentage of splits. If splits weigh 6 grams, the percent would be found as follows:

Grams of splits (6.0) ÷
Grams in sample (135) = 0.444 splits
or 4%
(shown in even percent)
(To show percentage, move decimal two places to the right.)

Immature damage and all classes of damage are considered total damage with the exception of heat damage. Damage should be analyzed on the basis of the entire sample (125 grams or more). Assuming damage weight as 3.2 grams, the percent would be determined as follows:

Grams of damage (3.2) ÷
Grams remaining in sample (135) =
.0237 damage or 2.4%
(shown in even tenths)

6. ***Determine moisture.***

Follow the manufacturer's instructions and weigh the sample exactly to specified amount. Be sure to take temperature correction that instructions call for. Moisture shall be determined on an uncleaned sample.

7. ***Miscellaneous grading factors***

a. Objectionable odors are musty, sour, moldy ground odors and sharp acrid odors which are common to unsound grain. Such odors result in "U.S. sample grade" soybeans.

b. Soybeans which are heating are graded "sample grade."

c. Garlicky soybeans are those that contain five (5) or more garlic bulblets in 1,000 grams of soybeans.

d. If the portion used for the determination of test weight per bushel contains live weevils, it is graded "weevily."

8. ***Practice using soybean discount sheets.***

Soybeans are discounted in a manner similar to corn with a discount sheet that applies to soybeans only. The amount of the discount depends on the amount of handling, drying and cleaning required before the beans are ready for processing. Note that discounts shown in Figure 2-27 apply if the soybeans do not meet the following minimum standards:

13% moisture	1% other colors
56 lb test weight	2% damage
20% splits	0.2% heat damage
1% foreign material	

The drying charge for the discount schedule given is on a wet bushel basis. A wet bushel is 60 pounds of soybeans at any moisture content above 13 percent.

As an example, assume that you delivered to your elevator a load of soybeans weighing 11,600 pounds. The quoted price for soybeans is $6.24 per bushel. Using the Soybean Discount Sheet shown in Figure 2-27, determine the net value of your load of soybeans.

Your soybeans tested 16.5% moisture
Your soybeans were graded as follows:

Test weight per bushel	53 lb
Damage	2.7%
Splits	24%

Bushels of wet soybeans 11,600 lb ÷ 60
= 193.33 bu
Drying cost 193.33 bu x $0.13 = $25.13

Discount Items	Amount of Discount/ Bushel
Test weight/bu 53 lb.	$0.01
Damage grade 2.7%	0.02
Splits 24.0%	0.0025
Total Discount	$0.0325

Figure 2-27 SOYBEAN DISCOUNT SHEET

(for all soybeans delivered by **truck**)

Base Grade: No. 1 Yellow Soybeans, 56# T.W., 13.0% Moisture, 2.0% Damage, 0.2% Heat Damage, 1.0% Foreign Material

CASH AND DELAYED PRICE

SHRINK AND DRY SCHEDULE

Moisture	Shrinkage	Drying Charge per Wet Bushel
13.1 to 13.5	1.0%	0¢
13.6 to 14.0	1.7%	−2¢
14.1 to 14.5	2.4%	−4¢
14.6 to 15.0	3.2%	−6¢
15.1 to 15.5	3.9%	−8¢
15.6 to 16.0	4.7%	−10¢
16.1 to 16.5	5.4%	−13¢
16.6 to 17.0	6.2%	−16¢
17.1 to 17.5	7.0%	−19¢
17.6 to 18.0	7.8%	−22¢
18.1 to 18.5	8.6%	−25¢
18.6 to 19.0	9.4%	−28¢
19.1 to 19.5	10.2%	−31¢
19.6 to 20.0	11.0%	−34¢
20.1 to 20.5	11.8%	−37¢
20.6 to 21.0	12.6%	−40¢
21.1 to 21.5	13.4%	−43¢
21.6 to 22.0	14.2%	−46¢
22.1 to 22.5	15.0%	−49¢
Over 22.5		market

HEAT DAMAGE AND TOTAL DAMAGE*

Damage Grade	Total Damage Discount	Heat Damage Discount
0.0 to 0.2	0	0
0.3 to 1.0	0	−2¢
1.1 to 1.5	0	−6¢
1.6 to 2.0	0	−10¢
2.1 to 2.5	−2¢	−14¢
2.6 to 3.0	−2¢	−18¢
3.1 to 3.5	−4¢	−22¢
3.6 to 4.0	−4¢	−26¢
4.1 to 4.5	−6¢	−30¢
4.6 to 5.0	−6¢	−34¢
5.1 to 5.5	−8¢	market
5.6 to 6.0	−10¢	
6.1 to 6.5	−12¢	
6.6 to 7.0	−14¢	
7.1 to 7.5	−16¢	
7.6 to 8.0	−18¢	
Over 8.0	market	

TEST WEIGHT

54.0 or better	0
53.9 to 53.0	−1¢
52.9 to 52.0	−2¢
51.9 to 51.0	−3¢
50.9 to 50.0	−4¢
49.9 to 49.0	−5¢
48.9 to 48.0	−6¢
below 48.0	market

SPLITS

0 to 20.0	0
20.1 to 25.0	−1/4¢
25.1 to 30.0	−1/2¢
30.1 to 35.0	−3/4¢
35.1 to 40.0	−1¢
over 40.0	market

OTHER DISCOUNTS

Heating	−10¢
Sour	−15¢
Weevily	−5¢
Musty	−5¢
Purple Mottled or Stained	−10¢

*Damage: Heat damage will be added to other damage and discounted as total damage. Heat damage will also be discounted on the heat damage scale.

Foreign Material: Each fraction of 1% of all foreign material in excess of 1% shall be deducted from gross weight and will not be paid for. A discount of 1¢ for each 1% or fraction of 5.1% and over will also apply.

Other Colors: brown, black, etc. 1/2¢ per bushel discount for each1% or fraction thereof in excess of 1%.

Soybeans which grade **sample grade** will be subject to rejection or discounted as market conditions warrant.

* SUBJECT TO CHANGE WITHOUT NOTICE *

Net price $6.24 - $0.0325	=	$6.207 per bu
Pounds shrinkage 11,600 lb x .054	=	626.4 lb
Pounds dry soybeans 11,600 - 626.4	=	10, 973.6 lb
Bushels dry soybeans 10,973.6 + 60	=	182.89 bu
Net value dry soybeans 182.89 bu x $6.207	=	$1,135.22
Net value of load $1,135.22 - $25.13 drying cost	=	$1,110.09
Cost of drying per dry bushel $25.13 + 182.89	=	$0.137 per dry bushel

Wheat Grading Procedure

Wheat, like other grains, has grades and grade requirements. Though many items are similar to those for corn and soybeans, there are also more and different considerations. (See the U.S. Standards for Wheat for official grade requirements.) The following steps are recommended for grading wheat.

1. ***Draw a representative sample*** (about 2 1/2 quarts).

   Probe the truckload of wheat in at least five different places when securing the sample. Observe the top of the load for "pink" wheat, rodent pellets and bird droppings.

2. ***Mix sample thoroughly.***

   Cut down the sample over the divider for uniformity. It is important to have a uniform sample from your five probes.

3. ***Test for moisture.***

   This is made on a representative portion of 250 grams cut with the divider from the original sample without the dockage removed.

4. ***Make dockage determination.***

   a. Weigh out about 1,000 grams from mixed portion in four operations of about 250 grams each. Work the sample over the dockage sieves which should be placed as follows: first the bottom pan, then the fine seed of 1/12" round perforation sieve placed in the bottom pan, then the 12/64" round perforation on top. The coarse dockage will stay on top of the 12/64" sieve and the fine seeds and cracked wheat will go through the center sieve (which is the 1/12" perforation) into the bottom pan. The portion that did go through into the bottom pan, together with the coarse materials such as corn, straw, sticks and chaff on the top sieve, is put together and weighed to determine the amount of dockage in the total portion.
   b. Check immediately for weevil infestation as the weevils are now screened out of your sample if they are present.
   c. Check the sample for odor, tagged ends and general appearance. If any smut balls are present, you must determine the degree by using a 250-gram sample.

5. ***Test weight per bushel*** (determined after dockage has been removed).

   a. Use the entire sample of about 1,000 grams for making this test. Grain should overflow the test weight kettle.
   b. The hopper opening must be centered exactly two inches above the top of the kettle.
   c. Stroke the grain from the bucket in three zigzag motions with a rounded hardwood stroker. (Hold exactly at right angles to the top of the kettle.) Be sure that this apparatus is sitting on a firm base. It is important not to jar it before or during the stroking operation.

6. ***Check for damage.***

Damage is more apt to be found in wheat that has been stored rather than in wheat hauled directly from the combine. Some types of damaged kernels that may be found in Ohio's wheat are scab, tombstone, molds and sprout damage. These are frequently caused by unfavorable growing or weather conditions before harvest. "Sick" wheat is usually wheat that was in storage with too high a moisture content as well as too high a temperature, or both. Weevil bore damage in wheat results from infestation

by live weevils. Damage determination should be made on at least twenty grams' separation.

Remember to keep a constant lookout for *pink wheat* through the entire grading procedure. Use black light to check on suspicious kernels. **Absolutely no tolerance is allowed.** Secure a representative sample of all grain shipped. Grade the sample and keep its identity until the grade at destination has been determined.

Keep in mind that **wheat is food**. Maintaining good sanitary conditions in processing plants is important. Rodent hair, excreta and unsanitary conditions contaminate the wheat. Great strides have been made to correct this condition. Let's work hard to keep our wheat clean and suitable for human consumption.

7. ***Practice using wheat discount sheets.***

Wheat is discounted from a discount schedule similar to that for other grains, but there are generally fewer discounts for wheat than for corn or soybeans. Some elevators offer a premium for very dry wheat and for high test weight wheat. As with corn and soybeans, ask your elevator manager to explain his or her discount sheet if it differs from the one illustrated in Figure 2-28. The drying schedule shown here is on a wet bushel basis.

As an example, assume you delivered to your elevator a load of wheat weighing 14,200 pounds. The quoted price for wheat is $3.12 per bushel. Using the Wheat Discount Sheet shown in Figure 2-28, determine the net value of your wheat.

Your wheat tested 15.7% moisture
Your wheat was graded as follows:

Test weight per bushel	56.5 lb
Damage	5.4%
Foreign material	1.5%

Bushels of wet wheat 14,200 lb
+ 60 lb = 236.67 bu
Drying cost 236.67 bu x $0.05 = $11.83

Discount Items		Amount of Discount/ bushel
Test weight/bu	56.5 lb.	$0.02
Damage 5.4%		0.02
Foreign material	1.5%	0.02
Total Discount		$0.06

(See calculations at bottom of page.)

Grading Tips

1. An accurate grade is a fair one and always a truthful one, even when it involves the loss of a good customer or a large purchase.

2. Total grading accuracy always starts with a representative sample. (No favor is given by forgetting to probe or by letting the farmer dip out his or her own grading sample.)

KEEPING DISCOUNTS TO A MINIMUM

In planning your grain production and harvesting practices, there are several practices which can be used to keep discounts low. Some of these are listed here. Can you add to this list?

Production Practices

1. Select varieties and time of planting which will result in grain that is mature and low in moisture at time of harvest.

2. Use production practices that will prevent or control weeds.

3. Use varieties of grain that are likely to have a satisfactory test weight.

Net price $3.12 - $0.06 = $3.06 per bu
Deduct dockage from gross weight:
5.4% + 1.5% = 6.9% dockage x 14,200 lb gross wt = 979.8 lb dockage
14,200 lb wet weight - 979.8 lb dockage = 13,220.2 lb wet weight to be paid for
Pounds shrinkage 13,220.2 x .036 = 475.93 lb
Pounds dry wheat 13,220.2 - 475.93 = 12,744.27 lb
Bushels dry wheat 12,744.27 lb ÷ 60 = 212.41 bu
Net value of wheat 212.41 bu x $3.06 = $649.98
Net value of load $649.98 - $11.83 = $638.15

Figure 2-28 WHEAT DISCOUNT SHEET
(for all wheat delivered by truck)

Base Grade: No. 2 soft red or soft white wheat; 58# T.W., 13.5% Mo, 4% Dge, 1% FM, 5.0% S/B, 5% Total Defects, 5.0% Other Classes

Testweight	60.0 or better	58.0-59.9	57.0-57.9	56.0-56.9	55.0-55.9	54.0-54.9	53.0-53.9	52.0-52.9
	0¢	0¢	−1¢	−2¢	−4¢	−6¢	−8¢	−11¢

SHRINK AND DRY SCHEDULE

Moisture	Shrinkage	Drying Charge per Wet Bushel
13.6 to 14.0	1.0%	0¢
14.1 to 14.5	1.6%	−2¢
14.6 to 15.0	2.3%	−3¢
15.1 to 15.5	2.9%	−4¢
15.6 to 16.0	3.6%	−5¢
16.1 to 16.5	4.3%	−6¢
16.6 to 17.0	5.0%	−7 1/2¢
17.1 to 17.5	5.7%	−9¢
17.6 to 18.0	6.4%	−10 1/2¢
18.1 to 18.5	7.1%	−12¢
18.6 to 19.0	7.8%	−13 1/2¢
19.1 to 19.5	8.5%	−15¢
19.6 to 20.0	9.2%	−16 1/2¢

GARLICKY-1000 Grams

1¢ discount for each bulb 2 to 50

51 bulbs and over subject to market

DAMAGE

4.1 to 5.0	−1¢
5.1 to 6.0	−2¢
6.1 to 7.0	−3¢
7.1 to 8.0	−5¢
8.1 to 9.0	−7¢
9.1 to 10.0	−9¢
10.1 to 50.0	−3¢ each percent
50.1 and over	market

SMUTTY-250 Grams

Light	−4¢
30 to 44 balls	−15¢
45 to 59 balls	−25¢
60 to 75 balls	−35¢
76 to 89 balls	−45¢
90 to 109 balls	−55¢
110 to 129 balls	−70¢
130 balls and over	market
Tagged	−20¢
Excessively tagged	−40¢

OTHER DISCOUNTS

Heating	−10¢
Sour	−15¢
Musty	−10¢
Weevily	−8¢

FOREIGN MATERIAL (Rye, etc.)

0 to 1.0%	0
1.1 to 2.0%	−2¢
2.1 to 3.0%	−4¢
3.1 to 4.0%	−6¢
4.1 to 5.0%	−8¢
over 5.0%	market

Shrunken and Broken Kernels exceeding 5% 1¢ each 1% or fraction 5.1% to 20%

Total Defects exceeding 5% 1¢ each 1% or fraction 5.1% to 20%

(Total Defects include Shrunken and Broken Kernels, Damage and Foreign Material)

WHEAT OF OTHER CLASSES

5.1 to 8.0%	−2¢
8.1 to 10.0%	−5¢
10.1 to 15.0%	−10¢
Over 15.0%	market

ALL DOCKAGE will be deducted from gross weight beginning at 0.2%.
Ethylene dibromide (EDB) or carbon tetrachloride treated wheat is not accepted.
Seller guarantees that wheat will pass Pure Food and Drug requirements until unloaded.
Until unloaded, title remains in name of seller.

* SUBJECT TO CHANGE WITHOUT NOTICE *

Harvesting Practices

1. Adjust the combine so as to minimize damaged kernels.

2. Adjust the combine so as to minimize the amount of foreign material.

3. Check moisture at harvest time. If possible, avoid harvesting high moisture grain.

Market Clean Grain

Practice sanitation in harvesting and storing operations. Wheat containing the following amounts of filth will be graded "U.S. sample grade."

Animal Filth

Wheat containing two (2) or more rodent pellets, bird droppings or an equivalent quantity of other filth per 1,000 grams cut from the sample as a whole shall be graded "U.S. sample grade." Wheat containing one (1) or more large rodent, bird, frog or an equivalent combination of small animals or animal fragments in the sublot/lot as a whole shall be graded "U.S. sample grade."

Broken Glass

Wheat containing two (2) or more pieces of broken glass in a 1,000-gram portion cut from the dockage-free sample shall be graded "U.S. sample grade."

Heating

When high temperatures develop in wheat as a result of respiration, the wheat shall be considered *heating*. However, wheat that is warm due to storage in bins, cars or other containers during hot weather should not be confused with wheat that is heating from excessive respiration. Evidence of heating is obtained at the time of sampling. Heating wheat shall be graded "U.S. sample grade."

Crotalaria Seeds

Wheat containing three (3) or more crotalaria seeds (*Crotalaria* spp.) in a 1,000-gram portion cut from the sample as a whole shall be graded "U.S. sample grade."

Foreign Substance(s)

Wheat containing four (4) or more particles of an unknown foreign substance(s) or a commonly recognized harmful or toxic substance in a 1,000-gram portion cut from the sample as a whole shall be graded "U.S. sample grade."

Issuing Scale Tickets

Scale tickets are prepared at the elevator for each load of grain delivered to them for sale or storage. Scale weights are the basis for settlements for your grain, but are not a legal document establishing grain ownership like the warehouse receipt. As producer of the grain, you should understand what items are to be included on the scale ticket. Check it for completeness and accuracy before you leave the scale area (Figure 2-29).

Scale tickets show three items concerning the weight of your truck and load. These are:

Gross _____ lb
Tare _____ lb
Net _____ lb

- ***Gross*** is the weight of the truck and its load, including the driver if the driver remains in the truck.

- ***Tare*** is the weight of the empty truck, again including the driver. (If the driver stays on the truck during weighing for gross, he/she must also stay when the truck is weighed for tare.)

Figure 2-29 Weighing the load and using scale tickets.

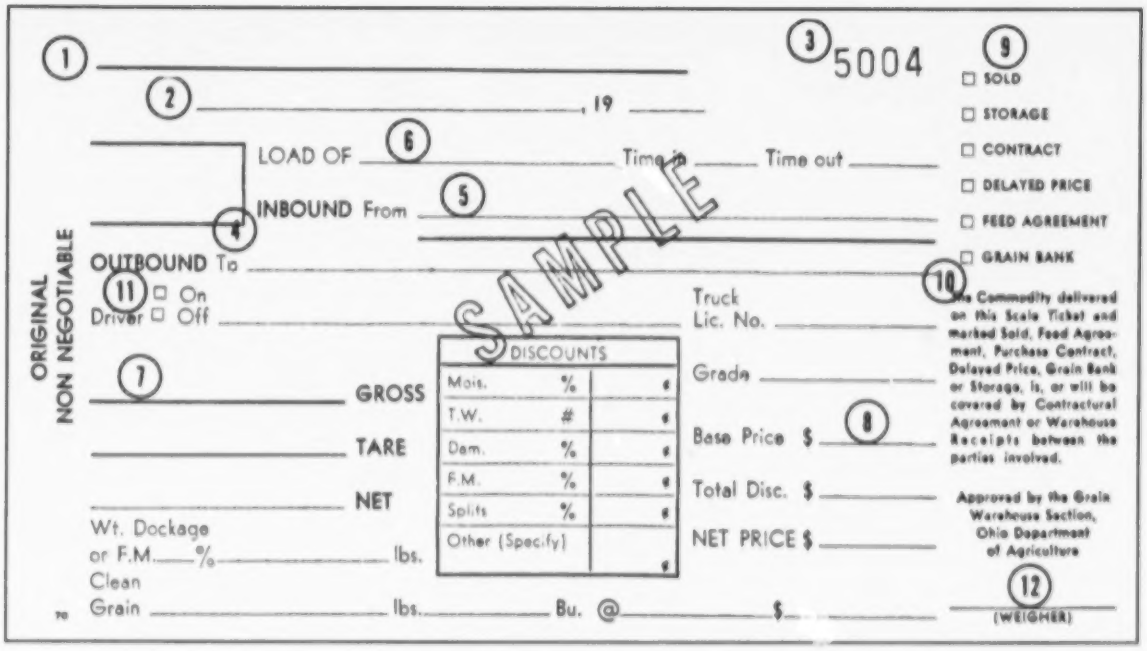

Figure 2-30 Sample scale ticket.
Source: Agricultural Business Supply and Service - Marketing Agricultural Products. Ohio Agricultural Education Curriculum Materials Service, The Ohio State University

- ***Net*** is the difference between these two weights, in other words, the **total weight of the grain delivered**.

Other information that is also included is grade, dockage, discounts and disposition of the grain. A sample scale ticket is given in Figure 2-30.

Recent legislation in Ohio has established certain standards for scale tickets used in the state by elevators licensed by the Grain Warehouse Section of the Ohio Department of Agriculture. The purpose of these standards is to assure the farmer that all important information concerning the grain transaction is properly recorded. However, there are no laws requiring a standard size or shape to the scale ticket, so these characteristics vary from one company to another.

Following are the twelve items that the Ohio Department of Agriculture requires on a scale ticket. (Refer to sample scale ticket, Figure 2-30 for an illustration of these items.)

1. Name and address of company
2. Date
3. Ticket number (in numerical order)
4. Provisions for indicating *inbound* or *outbound*
5. Name of depositor (inbound) or consignee (outbound)
6. Kind of grain
7. Gross, tare and net weight and provisions for adjustment of quality factors
8. Price, if sold
9. Provisions for indicating if the commodity is *sold*, on purchase *contract*, *delayed price*, *storage* or *grain bank*. (The number of these items will depend on how many of these functions the company performs.)
10. A clause referring to contracts. For example, "The commodity delivered on this scale ticket is or will be covered by contractual agreement or warehouse receipts between the parties involved."
11. Driver on or off scale
12. Name or initials of weigher

Besides these twelve items there may be such items as time in and time out, truck license number, and the actual dollar value of the load.

Methods of Off-Farm Storage of Grain

Farmers use different methods for off-farm storage of their grain such as regular storage at elevators, warehouse receipt storage, or grain bank storage. Some farmers store their grain as part of a particular marketing plan they are following. (These marketing plans will be discussed and compared in a later section of this manual.) Grain stored as part of such a marketing plan could be stored either on or off the farm.

Regular Storage at Elevators

When storage at a country elevator is secured, a price is established and quoted by the elevator. Examples of the storage fees charged by two Ohio country elevators are given in Figures 2-9 and 2-10. Storage fees vary from one elevator to another, so you may want to shop around before choosing the elevator in which to store your grain.

Warehouse Receipt Storage

Warehouse receipt storage (known as W.H.R. storage) is sometimes used in cases where a farmer may need a negotiable instrument as security in financial arrangements with a banker or with the Commodity Credit Corporation. The cost of this form of storage is generally somewhat higher than regular storage. Figure 2-31 shows the soybean shrink and drying schedule for warehouse receipt storage used by a Central Ohio terminal elevator. You can secure more details from your elevator manager and study the State (Ohio) and federal W.H.R. storage forms as shown in Figures 2-4 and 2-7, respectively, if you have occasion to use this type of storage.

Grain Bank Storage

Some producers want to deliver their grain at harvest and have the elevator store the grain for them. Title to the grain remains with the producer. Later they will use this grain on their farms as needed for feeding livestock. The usual procedure for the elevator is to take the grain from storage, grind or otherwise process it, mix it with supplement from the elevator, and deliver the mixed feed to the farm.

Many elevators use the same shrink and dry procedures as used for cash grain. Storage charges may be the same as for regular storage, or there may be special rates for grain bank storage. Elevators have also developed procedures to keep their patrons up to date on the amount of grain they have remaining in storage. Grain bank charges and policies vary from one elevator to another. Check with your local elevator before using their grain bank plan. Grain bank policies for one central Ohio elevator are shown in Figure 2-32.

Moisture	Shrinkage	Drying Charge per Wet Bushel
12.6 to 13.0	1.0%	0
13.1 to 13.5	1.7%	-2¢
13.6 to 14.0	2.4%	-4¢
14.1 to 14.5	3.2%	-6¢
14.6 to 15.0	3.9%	-8¢
15.1 to 15.5	4.7%	-10¢
15.6 to 16.0	5.4%	-13¢
16.1 to 16.5	6.2%	-16¢
16.6 to 17.0	7.0%	-19¢
17.1 to 17.5	7.8%	-22¢
17.6 to 18.0	8.6%	-25¢
18.1 to 18.5	9.4%	-28¢
18.6 to 19.0	10.2%	-31¢
19.1 to 19.5	11.0%	-34¢
19.6 to 20.0	11.8%	-37¢
over 20.0		market

Warehouse Receipts will be issued on the basis of No. 1 Soybeans, with 56# T.W., 12.5% Moisture, 2.0% Damage, 0.2% Heat Damage, 1.0% Foreign Material.

* SUBJECT TO CHANGE WITHOUT NOTICE *

Figure 2-31 Warehouse Receipted Soybean Shrink and Drying Schedule

Feed Agreement

A few elevators offer what is called a feed agreement. In this procedure the grain is sampled and tested upon delivery. The discounts used by the elevator will be determined at this time. As soon as the producer accepts the test results and the grain is unloaded, title to the grain transfers to the buyer. The producer then agrees to buy back the grain at a specified price plus service charges. This procedure should not be confused with the grain bank program. The advisability of giving up title to the

grain should be questioned. An example of a feed agreement contract is shown in Figure 2-33.

Government Storage

Farmers who participate in government programs may choose to store their grain on the farm or to use commercial storage. When commercial storage is used, federal warehouse receipts are issued. Conditions for such storage may vary from one elevator to another. The conditions and charges for government storage in one Central Ohio elevator are shown in Figure 2-34. Storage charges in particular are subject to change.

Grain Bank

Applies to corn delivered with intent to be used or processed as finished feed at a later date. Corn withdrawn or sold which is not processed using our ingredients will be subject to delayed price charges. Credit will be given for any storage charges that have been paid.

1. Drying charges and applicable discounts will be billed when corn is deposited. The extra 1% shrink will also be discounted then.*

2. Storage charges will be billed monthly based on the unused balance as of billing date. The rate will be .03 (3 cents) per bushel per month.

3. Discounts and premium charts in effect at the time of delivery will govern. This includes an extra 1% shrink.*

*The extra 1% shrink is to provide for the shrink caused by the extra handling of the grain in the grain bank.

Figure 2-32 Example of grain bank charges and policies at one Central Ohio elevator.

Government Storage

A limited amount of storage will be made available on a pro-rated basis to regular customers. Bushels will be determined ahead of delivery.

1. Advanced storage, grade discounts, drying charges, and warehouse receipt charges must be paid when warehouse receipts are issued.

2. Rates: Storage charge is 1/10 cent per bushel per day prepaid through loan maturity (9 months). Maximum refund for early cancellation is .09 (9 cents) per bushel. Warehouse receipt handling fees are .03 (3 cents) per bushel. Load out charges are .09 (9 cents) per bushel.

3. Warehouse receipt grain will be subject to grade and shrink terms in effect when space is reserved, which includes 1% extra shrink.

4. Warehouse receipts will be issued for
   * Moisture
   * Test weight
   * Damage
   * Foreign material

Any grain remaining after season which has not been issued a warehouse receipt will be transferred to delayed price.

Figure 2-34 Government storage provisions at one Central Ohio elevator.

Sugarcreek Farmers' Equity Co.

Feed _____ Agreement _____ Date _____

Ticket Number _____

Seller _____

Address _____

Description of Grain _____ Pounds _____

The parties to this contract here by agree that the Sugarcreek Farmers' Equity Co. shall have title to all grain delivered under terms of this agreement with weigh tickets to be marked. (Feed). Said title shall pass upon delivery of grain at a price of _____ per cwt. Obligating purchaser to furnish seller upon demand above quantity of grain at a price of _____ per cwt., less service charges of _____ per month.

Seller _____

Purchaser SUGARCREEK FARMERS' EQUITY CO.

By _____

RECEIVED
APR 26 1988
DEPT. OF AGRICULTURE
GRAIN WAREHOUSE SECT.

Figure 2-33 Example of a Feed Agreement Contract.

SETTLEMENT SHEET

The payment which the elevator makes to the producer of the grain will be made by check. The explanation and record of the procedure used in arriving at the amount of payment is shown on a *settlement sheet*. These settlement sheets may be different from one elevator to another, but the same basic information will be listed. Many elevators now use computers to record this information. However, the numbers appearing on the computer printout will be the same as those on the settlement sheet.

Explanations of the items that appear on the grain settlement sheet in Figure 2-35 are as follows:

1. ***Kind*** - Kind of grain: corn, soybeans, wheat, etc.
2. ***Branch*** - Many elevators have more than one branch or location.
3. ***Name and address*** - There are blanks for listing more than one name where there is a partnership agreement.
4. ***Sold, Storage,*** etc. - How grain accounting is to be handled in the elevator.
5. ***Scale ticket number*** - Save all scale tickets to be sure they are all accounted for (by scale ticket number) on the settlement sheet.
6. ***Test weight***, moisture (***moist.***), damage (***dmg***), foreign material (***fm***) and dockage (***dkg***) should agree with that listed on the scale ticket.
7. ***Unloaded weight*** would equal net on the scale ticket.
8. ***Pounds shrink and dockage*** will be subtracted from unloaded weight to secure net weight on settlement sheet.
9. ***Cents discount*** on this settlement sheet will be the discount only for items other than moisture since drying charge is listed separately.
10. ***Trucking*** - If someone trucks the grain for you, the elevator may agree to deduct that charge from your grain. The elevator would then pay the trucker.

Check all figures. Mistakes are occasionally made. We are all human. The people working for the elevators want to avoid errors just as you do.

Figure 2-35 shows a completed settlement sheet indicating the figures necessary for the final settlement. This settlement sheet is from Elevator A, as discussed under "Corn Discounts for Moisture." The pounds of wet shelled corn needed to make one bushel of dry shelled corn are shown in the "pounds, shrink, dock." column. Calculate the net bushels, value and drying charges to see if you agree with the elevator figures.

Summary

When using off-farm storage facilities you should consider many more factors than the protection of your grain from the elements. Some of these factors are:

1. The honesty of the elevator owner and/or manager.

2. The financial condition of the business. What happens to your grain if the business fails? This is less important now than in the past since a state indemnity fund has been established to protect farmers from the loss of their grain due to elevator business failures.

3. The ability of the elevator workers to sample and test your grain accurately.

4. The physical condition and capacity of the elevator. Can it adequately store your grain?

5. Is the elevator operator licensed by the state or federal government or both? A review of the licensing procedures shows that you will be assured of more protection when a licensed facility is used.

6. When delivering grain to your elevator, whether it is to be stored or sold, there are certain precautions you should take. You should be as careful about depositing your grain in an elevator as you are abou depositing your money in a bank.

7. Save all records of your transactions in a file where they can be readily located.

   Scale ticket - complete record of the transaction.
   Contracts - if one was entered into.
   Warehouse receipt - if this type of storage was used.

   These are as good as money and should be treated as such. They are also costly to replace. Do not depend upon the elevator to keep your records. A catastrophe such as a fire might destroy their records. Also, one of your forms might be accidentally misplaced.

GRAIN SETTLEMENT SHEET

KIND Shelled Corn NAME _____ %

BRANCH _____ ADDRESS _____

NAME _____ %

NAME _____ %

SOLD ✓

CONTRACT NO. _____

STORAGE:

GOV. LOAN _____

REGULAR _____

LEASED _____

GRAIN BANK _____

DATE	SCALE TICKET NO.	TEST WEIGHT	MOIST.	DMG	FM / DKG	UNLOADED WEIGHT	POUNDS SHRINK DOCK.	NET WEIGHT	NET BUSHELS	BASE PRICE	CENTS DISC.	SETTLEMENT PRICE	VALUE	DRYING RATE	DRYING CHARGE
11/5/88	4062	53	23.9				64	11115	173.67	2.11	-1	2.10	364.71	10	17.37
11/8/88	4096	53	23.4				63.5	11050	174.02	2.13	-1	2.12	368.92	9½	16.53
11/10/88	4135	52	24.4				64.5	6980	108.22	2.13	-2	2.11	228.34	10½	11.36

MARKETING CARD NUMBER _____

WAREHOUSE RECEIPT NUMBER _____

TOTAL $ 961.97

LESS: TRUCKING $ _____

DRYING 45.26

STORAGE _____ BU. @ _____ ¢ FOR DAYS _____

AMOUNT $ 916.71

11/11/88
DATE

CHECK NO. _____

Figure 2-35 Completed grain settlement sheet.

Figure 2-36
Table of U.S. Standard Grades and Grade Requirements for
WHEAT
Source: Federal Register, Oct. 2, 1986, Vol. 51, No. 191, p. 35239

	Minimum limits of–		Maximum limits of–						
	Test Weight per bushel							Wheat of other classes[4]	
	Hard Red Spring wheat or White Club wheat	All other classes and subclasses	Heat damaged kernels	Damaged kernels (total)[2]	Foreign material	Shunken and broken kernels	Defects (total)[3]	Contrasting classes	Wheat of other Classes[5]
	(pounds)[1]	*(pounds)*	*(percent)*	*(percent)*	*(percent)*	*(percent)*	*(percent)*	*(percent)*	*(percent)*
U.S. No. 1	58.0	60.0	0.2	2.0	0.5	3.0	3.0	1.0	3.0
U.S. No. 2	57.0	58.0	0.2	4.0	1.0	5.0	5.0	2.0	5.0
U.S. No. 3	55.0	56.0	0.5	7.0	2.0	8.0	8.0	3.0	10.0
U.S. No. 4	53.0	54.0	1.0	10.0	3.0	12.0	12.0	10.0	10.0
U.S. No. 5	50.0	51.0	3.0	15.0	5.0	20.0	20.0	10.0	10.0

U.S. Sample grade U.S. Sample grade shall be wheat which:

(a) Does not meet the requirements for the grades U.S. Nos. 1, 2, 3, 4, or 5, or

(b) Contains 8 or more stones, 2 or more pieces of glass, 3 or more crotalaria seeds (*Crotalaria spp.*), 2 or more castor beans (*Ricinus communis*), 4 or more particles of an unknown foreign substance(s) or a commonly recognized harmful or toxic substance(s), or 2 or more rodent pellets, bird droppings, or equivalent quanity of other animal filth per 1,000 grams of wheat; or

(c) Has a musty, sour, or commercially objectionable foreign odor (except smut or garlic odor); or

(d) Is heating or otherwise of distinctly low quality.

[1] These requirements also apply when Hard Red Spring wheat or White Club wheat predominate in a sample of Mixed wheat.

[2] Includes heat-damaged kernels.

[3] Defects (total) include damaged kernels (total), foreign material, and shrunken and broken kernels. The sum of these three factors may not exceed the limit for defects.

[4] Unclassed Wheat of any grade may contain not more than 10 percent of wheat of other classes.

[5] Includes contrasting classes.

(see page 44)

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CHAPTER 3

KINDS OF GRAIN MARKETS

There are two kinds of trading in the marketing of grain. One is the cash sale or spot trading of grain for immediate delivery or forward delivery at some specific time and place. The other is the buying and selling of futures contracts which can take place only on grain exchanges or boards of trade. (See Figure 3-1.)

CASH SALE OF GRAIN

When you sell your grain to the local elevator or other market of your choice, you and the buyer agree upon a price. You then deliver your grain; it is graded, and dockage, if any, is determined. If you accept the results of the grading, your grain is unloaded and you are paid. Ownership of the grain has changed hands.

The price quoted by the buyer of your grain will depend in part upon the price of grain that was established within the marketing system for that day. This information is available to both of you through the Market News Service. Your buyer's bid will also depend upon his or her assessment of the local, national and worldwide supply-and-demand situation. Your decision to accept the bid should depend upon the same factors.

The price bid by other buyers in nearby elevators may differ from the price you accepted. This may be due to differences in local supply-and-demand situations and the availability of transportation. Figure 3-2 shows that local grain prices are determined by world, national, and local supply-and-demand factors.

Forward contracts are involved when a cash price is determined for grain that will be established by the seller at a specific later date at a specified location. Forward contracts will be discussed later in this manual in more detail.

THE FUTURES MARKET

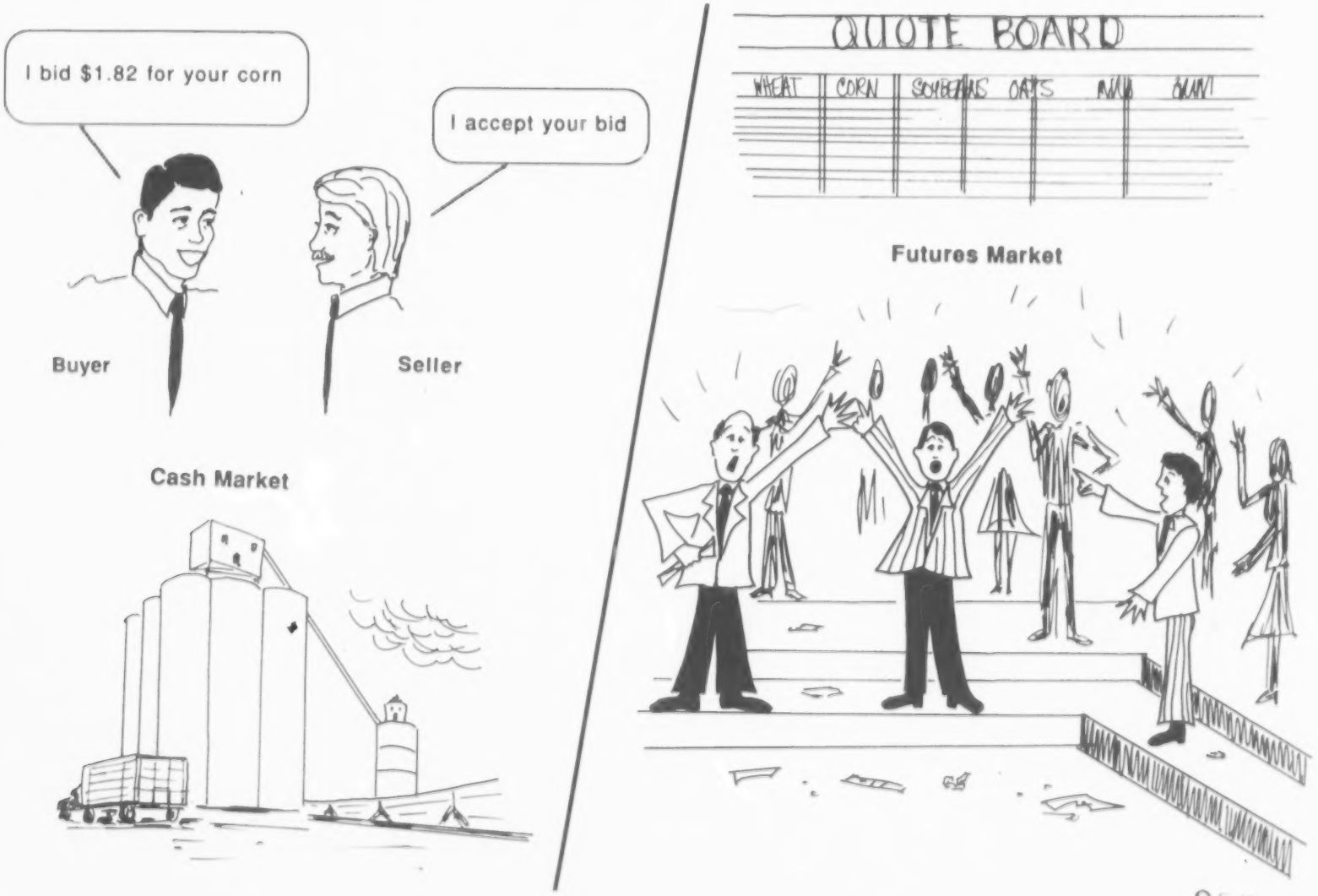
Development of the Futures Market

As previously pointed out, large supplies of grain become available at harvest. The demand for grain by processors is fairly constant throughout the year. Therefore, grain has to be stored and released as it is needed. Since grain prices could fluctuate widely during the year following harvest, before the development of the futures market, processors were at the mercy of the cash market as the marketing season advanced. Processors make their money by processing grain and selling their products. Thus they are not interested in speculating on the up-and-down movement of grain prices. To eliminate this risk, a system was developed whereby they could purchase grain at a specific price for future delivery. Processors would then know in advance what their grain was going to cost and they could manage their business accordingly. The highly efficient and regulated

LOCAL GRAIN PRICES

Figure 3-2 World, national and local supply and demand for grain determine local grain prices. →

Figure 3-1 TWO MARKETS



futures market of today developed out of this practice of buying grain contracts for future delivery.

Characteristics of the Futures Market

The futures market enables grain buyers and sellers to agree on prices throughout the marketing year. Buying and selling is done through boards of trade and follows specific, regulated procedures. Buyers and sellers are not predicting price; rather they are interpreting supply and demand conditions in order to discover a correct futures price. The price they arrive at may be changed many times before the future delivery period actually arrives. However, in the bargaining process, a price is established at which buyers and sellers are willing to exchange titles to grain at some specific time in the future. For example, if you see in a listing of futures prices in your newspaper or magazine that May corn is listed at 179, it means that buyers have agreed to buy corn in May at $1.79 per bushel and, of course, sellers have agreed to sell at that price. Figure 3-3 shows how the futures market moves up or down during the marketing year. Futures prices change as the buyers and sellers obtain additional information about supply and demand for the grain being traded and other factors that affect the market.

Trading in the Futures Market

The actual buying and selling on the commodity markets can be illustrated by activity on the Chicago Board of Trade, where most of the grain futures transactions in the United States take place. It has been referred to as the world's largest ongoing public auction market.

Buying and selling is done only by members who have a "seat" or trading privilege on the Board of Trade. These traders may be buying and selling for themselves, for others as speculators, or for those who wish to protect themselves in the market, a practice called **hedging**.

Trading is done on business days during specified hours (usually from 9:30 a.m. to 1:15 p.m. Central Time) in **pits**, which are raised octagonal platforms specially constructed for this trading. Futures orders to buy or sell a specified amount of a grain for a particular delivery month come in to desks on the exchange floor over open telephone lines from brokerage offices across the country and around the world. These orders are then relayed to a broker in the appropriate trading pit. There is a pit for each commodity such as corn, wheat, soybeans, and all other commodities traded at the exchange.

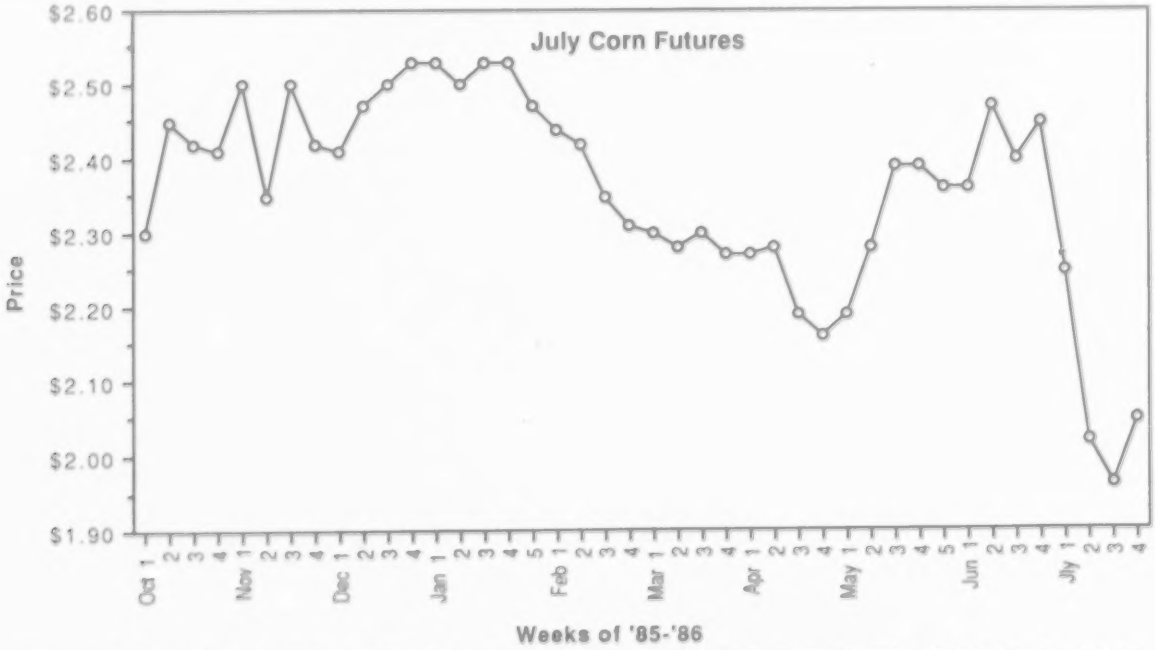


Figure 3-3 July corn futures for the Chicago Board of Trade, 1985-1986. (Price for Thursday of each week.) *Source:* Cooperative Extension Service, The Ohio State University.

All traders must offer to buy or sell by public outcry and must clarify these outcry bids by hand signals. The hand signals are as follows:

- Palm of hand facing self – wishes to buy
- Palm of hand facing away – wishes to sell
- Each finger in vertical position means one contract
- Arm and fingers of one hand in different positions indicate the fractions of a cent over the full cent figure the traders wish to buy or sell.

Trading in the pit is based upon the trader's expectations of change in supply and demand. Speculators have their ideas about whether futures prices will go up or down. They attempt to make money on the price fluctuations. Hedgers are attempting to protect themselves from unfavorable price changes.

The futures market is a zero-sum game; that is, for each dollar earned in the market an equal dollar is lost. For example, a trader who sold (short) grain may earn one dollar as the buyer (long) loses one dollar.

In the very short term, prices vary due to profit-taking activities of the buyers and sellers in the pit. Their bids are based upon their knowledge and speculation about the following:

- If planting intentions are reported to decrease, futures prices increase.
- If corn production is reported to increase, futures prices decrease.
- If unfavorable weather conditions such as flooding or drought occur in the corn belt, futures prices increase.
- If slaughter of breeding animals is reported to increase in Europe, demand for grain decreases and futures prices decrease.
- If monetary policy decreases the money supply or increases interest rates while unemployment increases and income declines, demand decreases for grain and futures prices decline.

This list could go on and on, as any happening in the world that affects the supply and demand for grain will influence the bid traders make in the grain pit.

Once a trade has been executed the details are confirmed by both buyer and seller. The price is then relayed around the world via the Chicago Board of Trade state-of-the-art electronic quotation system and leased wires. As a result, a Wood County, Ohio soybean farmer has the same access to price information and at the same time as a terminal elevator in Toledo, an export terminal in New York, and an importer in Japan. This is the market news system at its best.

Some specified dates and amounts used on the Chicago Board of Trade are given at the bottom of the page.

Farmers may be able to locate brokerage houses which trade grain on the Mid-American Commodity Exchange, also located in Chicago. Mid-American is a much smaller exchange than the Board of Trade. The size of their contract is 1,000 bushels and the smallest variation in price traded is 1/8 cent.

Futures Contracts

A grain futures contract is a commitment to make or take delivery of a given grain at a designated time and place in the future for a price agreed upon in the trading pit. A futures contract standardizes the amount and quality

From the Chicago Board of Trade:

	Size of Contract	Marketing Year	Trading Months	Smallest Variation
Corn	5,000 bu	Oct. 1-Sept. 30	Mar, May, July, Sept., Dec.	1/4 cent
Soybeans	5,000 bu	Sept. 1, Aug. 30	Jan., Mar., May, July, Aug., Sept., Nov.	1/4 cent
Wheat	5,000 bu	July 1-June 30	Mar., May, July, Sept., Dec.	1/4 cent

of the grain being traded and specifies the future month for delivery.

A unique feature of the futures market is that the actual grain seldom changes hands. It is only a trading of paper, since contracts are liquidated or closed out by making equal but appropriate transactions. For example, if you buy futures contracts, you go *long in the market* and agree to accept delivery of the grain. This may be canceled out by going *short on the market* by selling futures contracts. This means you agree to make delivery of grain. The two transactions then cancel your account. These two transactions must be made in the same grain exchange, for the same grain, in the same amounts, and for the same futures trading month. Delivery of the grain itself accounts for only three percent of the contracts traded. If you are using the futures market, it is important for you to watch closely and close out your contract by the futures delivery month. Otherwise you may find yourself either delivering or receiving grain, depending upon whether you were short or long on the market. This could prove to be extremely expensive and inconvenient for you. The futures market can function only if the contracts are canceled out or the grain actually changes hands.

Futures Market Participants

Participants in the futures market may be divided into two categories:

1. Those who want to protect themselves by fixing a future price for their grain that should enable them to cover their costs and make a profit. This is called ***hedging*** and is accomplished by your taking a position in the futures market that is opposite your position in the cash market. (Hedging will be explained in more detail later in this manual.)

2. Those who want to make a profit on the up and down movement of futures prices. These people seldom own grain, but hold contracts for either delivering or receiving grain. These contracts are usually closed out before the grain is transferred.

Hedgers include:

- *Farmers* seeking protection against declining prices of crops in the field or in storage.
- *Elevators* needing protection against lower prices between the time they purchase or contract to purchase grain from farmers and the time they sell the grain.
- *Processors* seeking protection against rising grain prices or against lowering prices of grain in their storage.
- *Exporters* requiring protection against an increase in the cost of grain that has been contracted for future delivery at a firm price but not yet purchased.

Profit seekers include:

- *Speculators* who sell when hedgers are buyers and buy when hedgers are sellers. These people make their profits by attempting to anticipate the fluctuations of grain prices. Their buying and selling actions benefit the grain market by leveling off these up-and-down price movements and making a safer market for others. Speculators have often been criticized for taking too much money from the market for the contribution they make. However, research shows that about 50% of their transactions are incorrect and that 60 to 70% of them lose money.

- *Floor traders* who buy and sell on even the smallest price change and usually have short term holdings of contracts. They also attempt to correctly anticipate price movements.

With the large number and variety of traders in the futures market, it is easy to see why you can nearly always find someone to take an opposite position from yours when you want to hedge or cancel out your position in the market.

From the standpoint of producers, elevator operators, processors and exporters, the main function of the futures market is to shift the risk of price changes to the speculators and floor traders who are willing to accept it. In addition, futures markets encourage the widespread dissemination of price and other market information.

Reading the Futures Quotations

Newspapers such as the *Wall Street Journal* quote prices of grain and other commodities actually traded on a given market day. Figure 3-4 shows one such quotation made on Monday December 21, 1987 for corn, oats, soybeans, soybean meal, soybean oil and wheat. (Quotations for many other commodities are given on this page, but we are interested only in corn, soybeans and wheat.) The meaning of terms is also given. (On *ticker quotations*, the price of a bushel of grain may be listed, for example, at 2722, 2724 or 2726. The last number refers to the eighth of a cent, so these figures would be read as "272 1/4" (2/8), "272 1/2" (4/8) and "272 3/4" (6/8).) An example of a computer printout giving the futures market quotations is included in Figure 3-5. These quotations are updated every ten minutes.

Vocational agriculture students and farmers have various methods of keeping up to date on this information. (See Figure 3-6.)

FUTURES PRICES

Monday, December 21, 1987

Open Interest Reflects Previous Trading Day.

	Open	High	Low	Settle	Change	Lifetime High	Lifetime Low	Open Interest
—GRAINS AND OILSEEDS—								
CORN (CBT) 5,000 bu.; cents per bu.								
Dec	178½	179½	178½	179½	− ½	216	161¾	1,329
Mr88	186	186	185	185¾	− ¼	222¾	171	73,833
May	191¾	192	191	191¾	...	225½	174	20,405
July	196	196½	195½	196½	...	226½	180	14,613
Sept	197	199½	196¾	197¼	− ¼	223	180¾	3,540
Dec	195½	197½	195¼	197	+ 1¼	202	184	9,081
Mr89	204	204	203¾	203¾	+ 2	207¼	193½	485
Est vol 17,000; vol Fri 20,200; open int 123,286, +271.								
OATS (CBT) 5,000 bu.; cents per bu.								
Dec	205	205	203	205	+ 1½	214	121½	177
Mr88	191¾	191¾	189	191¼	+ ¾	205½	139½	2,775
May	183	183	181	182¼	...	184½	150¾	1,215
July	170½	170½	169	169½	− ¾	177	144	542
Sept	...	...	...	158¾	− ¼	170	143	206
Est vol 1,000; vol Fri 968; open int 5,915, −60.								
SOYBEANS (CBT) 5,000 bu.; cents per bu.								
Jan	596	602	594	601¾	+ 9¼	633	466½	30,631
Mr88	607	614	604½	613½	+10½	642½	474	43,463
May	614	621½	612½	621¼	+11	650	476	12,819
July	618½	626	617½	625½	+10¾	650	488½	16,358
Aug	616	621	615	621	+ 9½	646	512	1,519
Sept	600	604	598	604	+10	604	502	1,183
Nov	592½	599½	592	599¼	+ 8½	599½	499¼	9,536
Est vol 37,000; vol Fri 35,482; open int 115,505, −1,189.								
SOYBEAN MEAL (CBT) 100 tons; $ per ton.								
Dec	204.00	208.00	203.00	207.50	+ 3.90	223.20	132.00	1,726
Ja88	195.30	199.00	194.50	198.70	+ 4.40	214.00	132.50	20,[illegible]
Mar	189.00	190.50	186.30	190.20	+ 3.00	205.00	1[illegible].00	23,[illegible]
May	182.00	183.00	180.70	183.00	+ 1.40	199.00	148.00	9,85[illegible]
July	180.00	180.00	178.50	179.90	+ .90	198.00	148.10	6,979
Aug	178.50	180.00	178.00	178.50	+ .30	198.00	148.00	3,143
Sept	178.10	178.50	177.00	177.00	− .05	189.00	153.00	2,478
Oct	176.00	176.70	176.00	176.30	− .20	184.50	159.00	938
Dec	176.50	177.70	176.00	176.00	− .20	184.00	159.00	2,594
Est vol 16,000; vol Fri 17,314; open int 71,405, −84.								
SOYBEAN OIL (CBT) 60,000 lbs.; cents per lb.								
Dec	20.10	20.36	20.00	20.27	+ .45	28.36	15.52	711
Ja88	20.15	20.42	19.94	20.29	+ .60	28.42	15.57	22,593
Mar	20.40	20.79	20.36	20.77	+ .58	28.79	16.29	34,219
May	20.68	21.10	20.68	21.09	+ .61	21.10	16.50	9,997
July	20.98	21.33	20.90	21.32	+ .62	21.33	16.65	7,525
Aug	20.98	21.38	20.98	21.35	+ .63	21.38	16.71	1,890
Sept	21.25	21.40	21.20	21.25	+ .50	21.40	16.55	1,767
Oct	21.30	21.30	21.30	21.30	+ .60	21.30	17.25	1,087
Dec	21.30	21.40	21.10	21.40	+ .60	21.40	18.30	1,831
Est vol 28,000; vol Fri 21,595; open int 81,636, +1,841.								
WHEAT (CBT) 5,000 bu.; cents per bu.								
Dec	313	313	310¼	310¾	− 1¼	325	247½	344
Mr88	320½	322½	318¼	320¼	− ¾	334½	253	19,419
May	313¼	314½	311	313	− ½	319¼	263	4,457
July	300	301	299	300¾	...	307¼	253½	6,209
Sept	304	304	303¼	304	+ 1	310½	272	482
Dec	314	314	312	312¼	+ ¼	317½	289	175
Est vol 10,000; vol Fri 11,504; open int 31,086, +1,688.								
WHEAT (KC) 5,000 bu.; cents per bu.								
Dec	312	312	310	310	− 2	318	247½	264
Mr88	307½	308	306½	307½	...	315	262½	15,619
May	302	302½	300½	302½	+ 1½	306½	262¼	1,544
July	294	294½	292	294½	+ ½	303½	272	941
Est vol 4,378; vol Fri 4,244; open int 18,291, +144.								
WHEAT (MPLS) 5,000 bu.; cents per bu.								
Dec	285	285	285	285	...	321	257	111
Mr88	295½	296	293½	294½	− 1¼	324	266	6,100
May	299	299	297	297¼	− 1¼	306½	286½	461
Est vol 1,140; vol Fri 1,742; open int 6,763, +698.								

CBT - Chicago Board of Trade
KC - Kansas City Board of Trade
MPLS - Minneapolis Grain Exchange

Open - the price at which the first transaction of the day took place
High - the highest price of any transaction during the day
Low - the lowest price of any transaction during the day
Settle - the price at the close of the day's market. (If two prices are listed, trading was taking place at both prices as the trading ended. This is known as a *split settle*.)
Change - the change of the settle (plus or minus) from the prices of the settle of the previous trading day
Lifetime High/Low - the highest and the lowest futures prices for the life of the contract
(**1/4, 1/2, 3/4** - the fraction of a cent above the full cent price. Corn, wheat and soybeans are quoted in cents and fractions of a cent per bushel; the smallest variation traded is one-fourth of a cent per bushel.)
Open interest (open int) - number of contracts that have not been offset by traders
Estimated volume (**est vol**) - number of contracts traded
Volume Friday (**vol Fri**) = number of contracts traded on Friday (or whatever day is indicated)

Figure 3-4 Futures prices of grain and other commodities actually traded on a given day.
The Wall Street Journal, December 21, 1987

CORN 04/20/88 15:56

	Open	High	Low	Last	Chg
May	r2050	2052	2040	S2042	- 12
Jul	r2126	2132	2114	S2120	- 12
Sep	r2184	2186	2170	S2174	- 12
Dec	2262	2270	2250	S2256	- 12
Mar	2340	2342	2330	S2334	- 10
May	2386	2386	2376	S2380	- 12
Jul	2412	2416	2400	S2404	- 10

SOYBEANS 04/20/88 15:57

	Open	High	Low	Last	Chg
May	r6694	6722	6664	S6666	- 52
Jul	r6794	6820	6760	S6766	- 52
Aug	r6834	6854	6800	S6802	- 54
Sep	6854	6880	6820	S6822	- 56
Nov	r6960	6980	6910	S6916	- 64
Jan	r7040	7050	6990	S7000	- 60
Mar	r7100	7130	7080	S7080	- 60
May	0	0 N	0	S7130	- 54
Jul	7160	7170	7150	S7150	- 40

WHEAT - CBT 04/20/88 15:57

	Open	High	Low	Last	Chg
May	r3144	3164	3134	S3156	+ 14
Jul	r3232	3254	3222	S3244	+ 14
Sep	r3304	3324	3300	S3320	+ 16
Dec	r3410	3426	3402	S3424	+ 10
Mar	3460	3484	3460	S3480	+ 14
May	3490	3490	A3474	S3474	+ 10

Figure 3-5 Example of computer printout futures price quotations for corn, soybeans and wheat. *Source*: Ohio Farm Bureau ACRES Electronic Market News Service

Figure 3-6 Computers provide access to market news reports. *Courtesy* of Dan Humphrey, Fredericktown, Ohio

Technical Price Analysis

In the beginning of this manual we considered the fundamentals of the market dealing with the factors influencing supply of and demand for grain. These factors are important in establishing the price of grain both in the cash and the futures market. However, the futures market has another side that is important in influencing short term price movements: the **technical** side.

Supply and demand is not the key to the technical side of the market. Rather it deals with what people do with what they know about the market. It involves the psychology of the market, a guide to what traders are thinking.

Technical analysts study market actions to determine probable futures price trends. They depend upon three market factors:

1. Price movements as shown on price charts

2. Volume of futures contracts traded in one day

3. Open interest or the number of futures contracts that have not been offset by traders

Of these three factors the price movements shown on charts seem to be the most important. Volume and open interest information indicates whether trading is increasing, decreasing or remaining steady. This information is used by analysts to reinforce the information they gather from studying their charts. All the information contained in these three factors is given in the *Wall Street Journal* futures price quotations. (See Figure 3-7.)

Many traders rely on price movement charts. These charts work because traders make them work. All study the same charts and follow the same guidelines in interpreting what they see. As a result, traders make similar decisions which influence the market to behave the way they thought it would.

Bull Markets and Bear Markets

As you study market reports you will see references to *bulls* and *bears* as well as bull markets and bear markets. These terms are so commonly used that you must know what they refer to when interpreting market news reports.

Bear - A trader who expects lower prices

Bear Market - There is an excess supply of grain; sellers dominate the market as they try to liquidate their long position in the market (that is, sell their long contracts for taking delivery of grain). This action causes market prices to decline.

Bull - A trader who expects higher prices

Bull Market - There is a short supply of grain; buyers dominate the market as they take a long position in the market (that is, buy long contracts to accept future delivery of grain). This action causes market prices to increase.

References to bulls and bears is as important on the fundamental side of the market as it is on the technical side. For example, if one speculator or producer or any other trader reacts to the news of a drought in Brazil during the soybean growing season, other traders will interpret this to mean that soybean supplies will decrease. This would tend to create a bullish attitude in the market.

Bar Charts

A bar chart can be used to show the daily fluctuation of the futures market prices in graphic form. This provides a picture of what is happening in the market that is easier to understand than reading technical terms and price quotations contained in market news reports.

Bar charts are simple to construct but not necessarily simple to interpret. Each day's trading is represented by a vertical bar, the top of which is the day's high and the bottom, the day's low. The settle price (last transaction of the day) is indicated by a horizontal hash mark. Its change of location from one day's bar to the next shows the movement of the market. Thus the vertical axis of the graph has the price, while the horizontal axis has the dates. Figure 3-7 shows an enlarged portion of a bar chart based upon March futures prices in the *Wall Street Journal* for the week of January 26 through 30, 1987.

BAR CHART SHOWING FUTURES PRICES

FUTURES PRICES

Monday, January 26, 1987

Open Interest Reflects Previous Trading Day.

	Open	High	Low	Settle	Change	Lifetime High	Lifetime Low	Open Interest
–GRAINS AND OILSEEDS–								
CORN (CBT) 5,000 bu.; cents per bu.								
Mar	159¾	159¾	158	159¼	– ¼	242½	152¾	50,446
May	166	166	164¼	165¾		242	160¼	27,249
July	169¾	170½	168½	170½	+ ¾	227	164½	27,124
Sept	173¼	173¾	172¼	173¾	+ ¾	201½	168¼	6,466
Dec	177	177¾	176¼	177¾	+ 1	197	171¼	19,044
Mr88	184¼	185½	183¾	185¼	+ 1	203¾	179½	2,668
May	187	188	187	188	+ 1¼	195½	183	598
Est vol 18,000; vol Fri 12,919; open int 133,595, +35.								
SOYBEANS (CBT) 5,000 bu.; cents per bu.								
Mar	499	501	497	500¾	+ ½	576	483½	27,749
May	499	500¼	497½	500¼	+ ¼	574	489	13,137
July	498½	500½	497½	500½	+ ¾	577½	491	17,854
Aug	498	499½	496¾	499½	+ 1½	540½	490½	4,512
Sept	487	488½	486½	486¾	+ ¾	512	483½	2,156
Nov	484½	485¼	483¼	484½	– ¼	514	479½	6,735
Ja88	490	491½	490	490¾	– ½	519	487½	326
Est vol 20,000; vol Fri 22,814; open int 72,668, +1,452.								
WHEAT (CBT) 5,000 bu.; cents per bu.								
Mar	290½	293¼	288¾	293¼	+ 2¼	308	243½	13,628
May	271½	274	269¾	273	+ 1¼	300	233¼	[illegible]
July	252¼	254½	251¼	254¼	+ 1¼	254½	223¼	[illegible]
Sept	252¾	254	252	253¾	+ 1	254	233	1,370
Dec	258	260	258	260	+ 1¼	260	247½	391
Est vol 6,000; vol Fri 8,341; open int 27,510, +881.								

FUTURES PRICES

Tuesday, January 27, 1987

Open Interest Reflects Previous Trading Day.

	Open	High	Low	Settle	Change	Lifetime High	Lifetime Low	Open Interest
–GRAINS AND OILSEEDS–								
CORN (CBT) 5,000 bu.; cents per bu.								
Mar	158½	159	156½	156¾	– 2½	242½	152¾	49,557
May	164¾	165	163¼	163½	– 2¼	242	160¼	27,371
July	169¾	169¾	168¼	168½	– 2	227	164½	27,262
Sept	173½	173½	171½	171½	– 2¼	201½	168¼	6,556
Dec	177½	177½	176	176¼	– 1½	197	171¼	19,829
Mr88	185	185	183½	183¾	– 1½	203¾	179½	2,753
May	187¼	188	186½	187	– 1	195½	183	601
Est vol 24,000; vol Mon 14,539; open int 133,129, –466.								
SOYBEANS (CBT) 5,000 bu.; cents per bu.								
Mar	500	502¼	499½	501½	+ ¾	576	483½	28,094
May	499¾	502¼	499¾	500¾	+ ½	574	489	13,468
July	499¾	502	499½	500½	...	577½	491	18,478
Aug	498¾	500½	498½	498½	– 1	540½	490½	4,678
Sept	488	489¾	486½	486½	– ¼	512	483½	2,309
Nov	484	485¾	483½	484¼	– ¼	514	479½	7,054
Ja88	491	491	490½	490½	– ¼	519	487½	327
Est vol 27,000; vol Mon 17,632; open int 74,407, +1,739.								
WHEAT (CBT) 5,000 bu.; cents per bu.								
Mar	292	293¾	288¼	289	– 4¼	308	243½	13,652
May	273	273¾	270	270¾	– 2¼	300	233¼	4,007
July	254½	255	252	252¾	– 1½	255	223¼	7,963
Sept	253½	254½	252	252¼	– 1½	254½	233	1,412
Dec	258½	258¾	257½	258½	– 1½	260	247½	389
Est vol 9,000; vol Mon 4,118; open int 27,442, –68.								

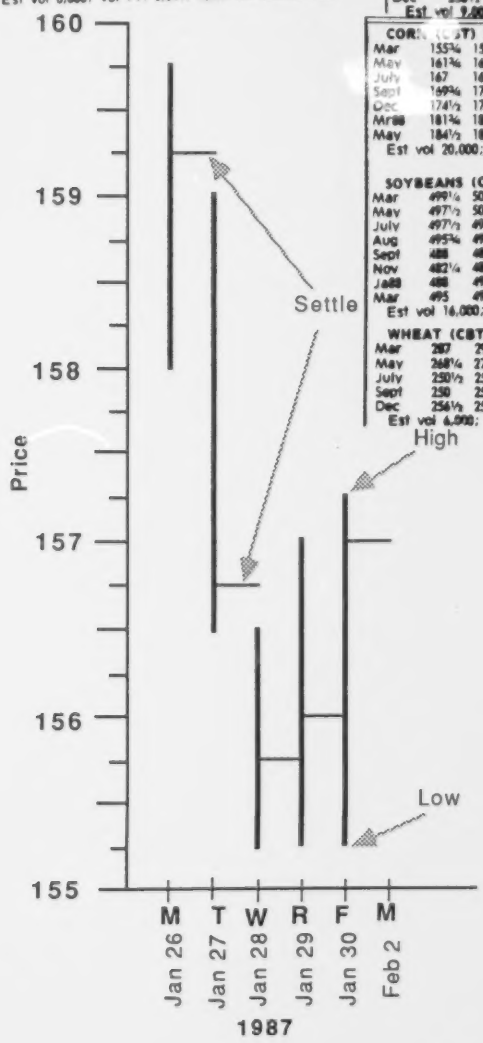
FUTURES PRICES

Wednesday, January 28, 1987.

Open Interest Reflects Previous Trading Day.

	Open	High	Low	Settle	Change	Lifetime High	Lifetime Low	Open Interest
–GRAINS AND OILSEEDS–								
CORN (CBT) 5,000 bu.; cents per bu.								
Mar	156¼	156½	155¼	155¾	– 1	242½	152¾	50,613
May	162¾	162¾	161½	161¾	– 1¾	242	160¼	27,726
July	167¼	167¾	166¼	166½	– 2	227	164½	27,407
Sept	171¼	171¼	169¾	170	– 1½	201½	168¼	6,657
Dec	175¾	176	174¼	174½	– 1¾	197	171¼	18,818
Mr88	183	183¼	181¾	182	– 1¾	203¾	179½	2,770
May	185¾	186	184½	184½	– 2½	195½	183	629
Est vol 25,000; vol Tues 19,453; open int 134,620, +1,491.								
SOYBEANS (CBT) 5,000 bu.; cents per bu.								
Mar	500	501	497½	498½	– 3	576	483½	28,509
May	500	500¼	497	497½	– 3¼	574	489	13,502
July	498¾	500	496	497	– 3½	577½	491	19,371
Aug	498¼	498½	495	495½	– 3	540½	490½	4,999
Sept	488¼	488½	484½	484¾	– 1¾	512	483½	2,286
Nov	483¾	484¾	481½	482	– 2¼	514	479½	7,302
Ja88	490	490	488	488	– 2½	519	487½	332
Est vol 14,500; vol Tues 22,638; open int 76,402, +1,995.								
WHEAT (CBT) 5,000 bu.; cents per bu.								
Mar	288½	289	287½	288	– 1	308	243½	13,388
May	269½	270	269	269	– 1¾	300	233¼	3,980
July	251	251½	250	251	– 1¾	255	223¼	8,079
Sept	251½	251½	249¾	251	– 1¼	254½	233	1,443
Dec	257	257	256	257	– 1½	260	247½	398
Est vol 4,000; vol Tues 6,422; open int 27,043, –399.								

Thursday, January 29, 1987



FUTURES PRICES

Thursday, January 29, 1987

	Open	High	Low	Settle	Change	Lifetime High	Lifetime Low	Open Interest
–GRAINS AND OILSEEDS–								
CORN (CBT) 5,000 bu.; cents per bu.								
Mar	155½	157¼	155¼	157	+ 1	242½	152¾	49,974
May	161¾	163	161½	162¼	+ ½	242	160¼	28,038
July	167	167¼	166	167	+ ½	227	164½	27,817
Sept	169¾	170¾	169¾	170½	+ ½	201½	168¼	6,951
Dec	174½	175¼	174¼	175¼	+ ¾	197	171¼	18,769
Mr88	181¾	182¾	181¾	182¾	+ ¾	203¾	179½	2,801
May	184½	185¼	184½	185¼	+ ¾	195½	183	642
Est vol 20,000; vol Wed 20,647; open int 134,992, +372.								
SOYBEANS (CBT) 5,000 bu.; cents per bu.								
Mar	499¼	501½	498½	501¼	+ 2¾	576	483½	27,706
May	497½	500¼	497½	499¾	+ 2¼	574	489	13,425
July	497½	499½	497	499¼	+ 2¼	577½	491	19,981
Aug	495¾	498	495¾	497¾	+ 2¼	540½	490½	5,106
Sept	488	488¼	486¾	487¾	+ 3	512	483½	2,289
Nov	482¼	484¾	481¾	484¾	+ 2¾	514	479½	7,279
Ja88	488	490½	488	490½	+ 2½	519	487½	341
Mar	495	497¾	495	497¾	+ 2	506	495	113
Est vol 16,000; vol Wed 18,218; open int 76,246, –156.								
WHEAT (CBT) 5,000 bu.; cents per bu.								
Mar	287	290½	286½	290½	+ 2½	308	243½	13,301
May	268¼	271½	268¼	271	+ 2	300	233¼	3,908
July	250½	252¼	250	252¼	+ 1¼	255	223¼	8,272
Sept	250	251	249¾	251	...	254½	233	1,512
Dec	256½	257½	256	257½	+ ½	260	247½	402
Est vol 6,000; vol Wed 3,448; open int 27,416, +373.								

FUTURES PRICES

Friday, January 30, 1987

Open Interest Reflects Previous Trading Day.

	Open	High	Low	Settle	Change	Lifetime High	Lifetime Low	Open Interest
–GRAINS AND OILSEEDS–								
CORN (CBT) 5,000 bu.; cents per bu.								
Mar	155½	157¼	155¼	157	+ 1	242½	152¾	49,604
May	162	163½	161¾	163	+ ¾	242	160¼	28,316
July	166¼	168	166	168	+ 1	227	164½	27,718
Sept	170¼	171½	170	171½	+ 1	201½	168¼	7,018
Dec	175	176½	174½	176½	+ 1¼	197	171¼	18,716
Mr88	182	184	182	184	+ 1¼	203¾	179½	2,803
May	184¾	186½	184¾	186½	+ 1¼	195½	183	812
Est vol 16,000; vol Thur 16,771; open int 134,987, –5.								
SOYBEANS (CBT) 5,000 bu.; cents per bu.								
Mar	498½	500¾	498½	500¼	– 1	576	483½	27,200
May	498½	499¼	498	498¾	– 1	574	489	13,064
July	497	499	497	498½	– ¾	577½	491	20,271
Aug	497	497	495½	496½	– 1¼	540½	490½	5,191
Sept	486½	487½	486	486	– 1¾	512	483½	2,349
Nov	482¾	484¼	482	483	– 1¾	514	479½	7,429
Ja88	490½	490½	489	489½	– 1	519	487½	343
Mar	496	496	496	496	– 1¾	506	495	125
Est vol 13,000; vol Thur 16,692; open int 75,978, –268.								
WHEAT (CBT) 5,000 bu.; cents per bu.								
Mar	289½	289¾	286	288¼	– 2¼	308	243½	13,528
May	271	271½	269	271¼	+ ¼	300	233¼	3,846
July	251½	253¼	251	253	+ ¾	255	223¼	8,258
Sept	251	251¾	250¾	251¾	+ ¾	254½	233	1,446
Dec	257	258	257	258	+ ½	260	247½	399
Est vol 7,000; vol Thur 5,505; open int 27,497, +81.								

Figure 3-7 Most daily bar charts start with Monday on a heavy line and the next four days of the business week on lighter lines. The weekend is skipped and the next heavy line is Monday again. Note that the settle price on Jan. 26 was above the high price for the 27th. The settle price reached its low on the 28th and started climbing on the 29th and 30th.

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Daily bar charts are useful for making short term price forecasts. Producers will be pricing their grain over a period of 12 to 24 months. For long range forecasts weekly bar charts are often used. The only difference is that in weekly bar charts the high and low for the week is shown on vertical lines and settle price is for the week.

You may keep your own charts or subscribe to a charting service. The pamphlet, *Charting, A Farm Futures Guide to Profitable Markets*, describes charting and how charts may be interpreted. Another source of charts is *The Brock Report* (by Richard A. Brock & Associates, Inc. See reference list.)

Interpreting Volume and Open Interest

Price movement shown on bar charts is the most important technical factor to consider in forecasting futures prices. However, two other technical factors should also be included: volume and open interest.

Volume is the number of futures contracts traded on a given day for a given commodity. An increase in the volume of stocks traded usually indicates a price increase. When volume decreases prices usually decrease.

Open interest is the number of futures contracts that have not been settled either by delivery of the grain, which seldom happens, or by purchasing an offsetting futures contract. Open interest contracts can be carried over from one day to the next while volume is calculated for each day. Open interest is not the same as volume, but does signal the number of contracts available for sale.

Both volume and open interest are shown on the bottom line of the futures price quotations for each grain. For example, Figure 3-7 shows that on Monday, January 26 the volume of corn futures contracts traded on the previous Friday was 12,919. The open interest for the same day was 133,595 corn futures contracts available for sale.

Sample charts from *The Brock Report* showing price movement, volume and open interest for corn, soybeans and wheat are given in Figure 3-8.

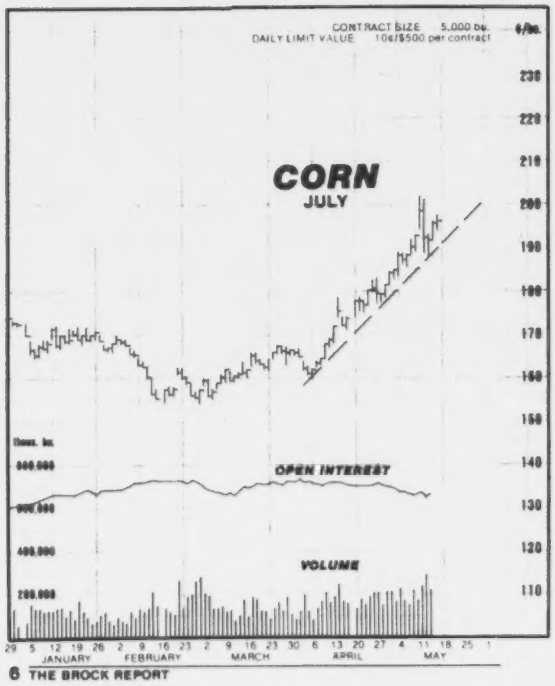
Over a long period of time the fundamentals of supply and demand influence price movements. Over a short period of time the actions of traders that are based upon what they think will happen have the most influence on short term price movements.

Figure 3-9 gives some elementary guidelines for considering the effect of open interest on short term futures price movements.

Price and open interest trend is a gauge showing whether new people are coming into the market as buyers or as sellers. Volume and open interest movements can be used to reinforce your interpretations of price movements as you see them in the bar charts.

Price Movement	Open Interest Movement	Market Signals
UP ↑	↑ UP	More people entering the market. Buyers are attracted. Technically strong market.
UP ↑	↓ DOWN	People going out of the market. Shorts buying back long positions. Market technically weak.
DOWN ↓	↑ UP	More sellers being attracted to the market. Market is technically weak.
DOWN ↓	↓ DOWN	Previous longs are selling their positions. Market at bottom and technically strong.

Figure 3-9 Open interest signals



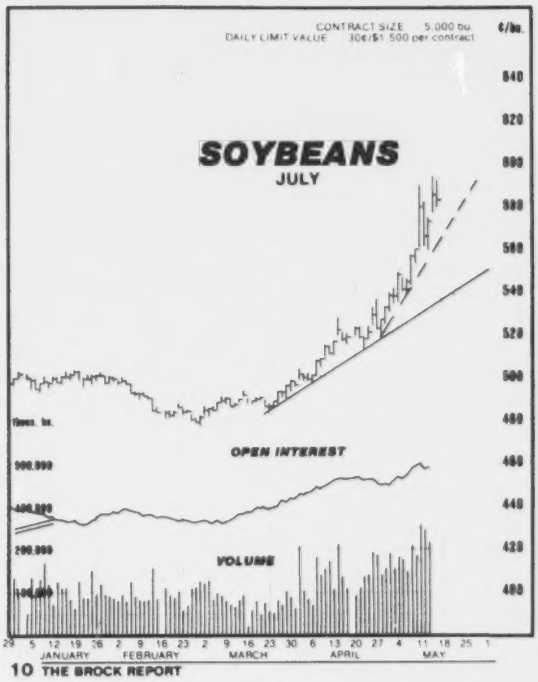


Figure 3-8 Sample charts from *The Brock Report* showing price movements, volume and open interest for corn, soybeans and wheat.
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This has been a very brief discussion of the technical side of the market. For more details, see *Charting, A Farm Futures Guide to Profitable Marketing* (see references). Also, your broker can assist you in working with the technical side of the market. As your grain marketing skills become more sophisticated, you can study the technical side of the market to determine the best time to place a hedge and when it should be lifted. A small price movement either way can mean dollars lost or gained. The kind of market news that interests technicians is illustrated in Figure 3-10.

The technical side of the market may not be of much help to you in developing a long range marketing plan for selling your grain. Your first consideration should be to develop a feeling of when prices are fundamentally high or low. Develop your skills in assessing long run price trends for your grain. This should be the basis for predicting grain price movements over a period of time. It is probably best to leave the prediction of market highs or day-to-day price movements to those whose interests are in the short run, such as the speculators.

Mechanics of Futures Trading

Your trading on a grain exchange must be done through a broker who has a seat on the exchange. Members of the exchange are the only persons permitted on the exchange floor.

Select a broker of high integrity so you can be assured your marketing orders will be carried out as given. Your broker can help you obtain market information and inform you concerning how the market functions. However, do not attempt to have your broker tell you what you should do in the market. You must make these decisions yourself.

Before you enter the futures market for hedging or purchasing options, the law requires that certain information be exchanged between you and the brokerage firm. The firm must provide you with a **risk statement** for you to read and sign. This statement points out the possibility that you could lose much or all the money you invest in the transactions. This does not mean that such losses are *probable*. You are expected to provide a **net worth statement** that indicates your ability to meet the required costs

10mar87/0500pm ACRES CORN UPDATE: Corn futures closed lower today in a sell off session. March futures reached resistance of $1.58 and turned lower by the closing bell. Long liquidation and commercial selling surfaced due to overbought conditions.

10mar87/0500pm ACRES SOYBEAN UPDATE: Soybean futures closed near at session lows based on a broad based sell-off as a shortage of fresh bullish news saw buyers back off. Beans were weak all day due to professional profit-taking and the dropping interior basis levels fueled commercial selling. The weak tone today started off from yesterday's USDA decision to increase 86/87 carryout from 615 million to 635 million.

10mar87/0500pm ACRES WHEAT UPDATE: Wheat futures closed mostly lower with the new crop months pressured by news that the soviets were not making plans to purchase US export bonus wheat. Trading early in the day was based on a statement that the soviets were possibly interested in purchasing this wheat. The soviet influence has been in this wheat market for three weeks in an on again--off again seesaw movement.

Figure 3-10 An example of market news carrying information that reflects short term technical adjustments in the market. *Source:* Ohio Farm Bureau ACRES Electronic Market News Service. Daily reports.

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of the transactions. You will sign a **commodities account agreement** which gives a detailed description of your responsibilities to the brokerage firm. You will grant the brokerage firm **power of attorney** to act on your behalf on the Board of Trade. There will be an **arbitration agreement** which tells how any differences between you and the brokerage firm can be settled.

Study these forms carefully so that you understand their terms. (Don't let their formality discourage or frighten you.) Here are the steps to follow for trading in a futures market.

1. Contact your commodities broker. Have the required forms explained to you and study them before signing.

2. Sign an agreement authorizing the broker to buy and sell futures contracts for you.

3. Place an order with your broker to buy or sell futures contracts, but only after you have analyzed the market and believe the action will benefit you. You must keep accurate, well organized records of all transactions so you will be able to manage your account. Do not depend on your broker to keep your records.

4. Deposit a margin requirement with the broker. This assures that you can cover your losses if unfavorable price changes occur. Margin deposits are required for both buying and selling futures contracts.

5. Close out the transaction (complete the hedge) at some future date, but not later than during the month the futures contract terminates.

6. Pay your brokerage fee.

Cost of Futures Trading

There will be a cost for dealing in the futures market in the form of a broker's commission fee and interest on the money deposited in your margin account.

A **broker's commission fee** will be charged for the round term initiating and closing out your account. The fee varies and may range from about $20.00 to $100.00 per 5,000 bushels contract. The fee will be specified in your contract. (The commission fees charged by one brokerage company are shown in Figure 3-11.)

An **original margin deposit** or maintenance margin (usually about 5 to 10 percent of the value of the grain) is made with your broker. This is to assure other traders in the market that you will be able to cover any losses you may have in the futures market due to changing prices.

You will receive a **margin call** from your broker for an additional margin deposit if the value of your contract declines too much due to price changes. If you do not make your margin

COMMISSION SHEET

			Dollars per Contract				
			Round Turn			*Spread*	
Commodity	**Contract Size**	**Value per Point**	1	2+	DT	1	2+
CHICAGO BOARD OF TRADE							
Corn	5000 bushels	$ 50.00	50	45	35	60	55
Soybeans	5000 bushels	50.00	55	50	35	69	63
Wheat	5000 bushels	50.00	55	50	35	69	63
Oats	5000 bushels	50.00	45	40	30	56	50
MID-AMERICA EXCHANGE							
Wheat	1000 bushels	$ 10.00	25	23	20	45	40
Corn	1000 bushels	10.00	25	23	20	45	40
Soybeans	1000 bushels	10.00	25	23	20	45	40

Figure 3-11 Fees charged by one brokerage firm for trading on the Chicago Board of Trade and the Mid-America Exchange.

call deposit promptly, your contract will be automatically closed out.

For example, if you purchased a 5,000 bushel contract and the price declined a specific amount, you would be given a margin call. Conversely, if you sold a 5,000 bushel contract, an increase in price would lower the value of your contract since you would have to pay more for buying a contract to close out your account. This would also cause a margin call to be made. These details will be described in your contract. (Margin requirements for one brokerage firm are shown in Figure 3-12.)

Interest should be charged for the money you have deposited in the margin account because you will be denied the use of this money during the life of your contract.

THE BASIS*

We have established that there are two grain markets: the cash market and the futures market. The cash market indicates the price at which local buyers and sellers are willing to trade grain for immediate delivery or at a specified time in the near future. The futures market indicates the price at which buyers and sellers are willing to trade grain during a specific trading month in the future.

Your local basis is the difference between the cash price paid by your local elevator minus the futures price for a certain future delivery month. For example, the basis for corn at one Ohio local elevator in 1986 was as follows:

Dec. 17	Cash price at local elevator	$1.45
Dec. 17	March futures price, Chicago	- $1.66
Dec. 17	Basis	- .21

The basis would be quoted as "-.21" or ".21 under" the futures price. This means $1.66 minus the basis of .21 equals the cash price of $1.45.

In actual practice we must specifically designate the particular day we are discussing and the particular futures month to which we are referring. There are two common ways of referring to basis.

Cash Basis

The cash basis at any time is the difference between the cash price and the price of the

*Much of the information concerning the theory and practice of basis was drawn from *Understanding and Using Basis for Grains* by E. Dean Baldwin, Department of Agricultural Economics and Rural Sociology, The Ohio State University.

MARGIN REQUIREMENTS

Commodity/Exchange	HEDGE Net Initial	Net Maint	Spread Initial	Spread Maint
CHICAGO BOARD OF TRADE				
Wheat	750	750	150	150
Corn	400	400	100	100
Oats	250	250	100	100
Soybeans	2500	2500	100	100
(Old/New Crp Sprds)			1000	1000
MID-AMERICA EXCHANGE				
Corn - 1M bu	80	80	50	50
Wheat - 1M bu	120	120	50	50
Oats - 5M bu	250	250	100	100
Soybeans - 1M bu	300	300	100	100

Figure 3-12 The margin requirements for one brokerage firm for hedging on the Chicago Board of Trade and the Mid-America Exchange.

nearest futures month. In November, for example, the nearest futures month for corn would be December. An illustration would be:

Nov. 4	Local cash price	$1.43
Nov. 4	December futures price, Chicago	- $1.75
Nov. 4	Basis	- .32

Or the basis is .32 under the futures price.

Basis on Futures Other than Nearest Month (Present Basis)

When a basis is considered with a futures month other than the nearest futures, the actual month needs to be designated. For example:

Dec. 17	Cash price at local elevator	$1.45
Dec. 17	May futures price, Chicago	- $1.72
Dec. 17	Basis under the May	- .27

Or the basis may be expressed as 27 cents under the May futures. This may be referred to as the ***present basis*** for a designated futures month on any given day.

The Historic Basis (Normal Basis)

The start of any study on basis should be the understanding of the normal basis at your elevator. The history of the basis over a period of years can be used to study the comparison of the basis of past years with what is happening today. This information may be available from your local elevator or from a local farmer who has been keeping accurate records over a period of years. Whether or not these records are available, you as an individual or your vocational agriculture department could start keeping these records now. They will help you and they can also help future students even more. These records need not be kept every day but should be available for at least one day (preferably the same one) each week. The records can be kept in simple column form in a notebook, on a graph, or both.

Figure 3-13 illustrates a form that can be used in recording the local cash price, the futures price, and the basis on one day (Thursday, for example) each week during the length of the contract period. According to this form, the *average* historic or normal cash basis for the first week in October for the years 1983 through 1986 would be as follows:

1983	- 0.07
1984	- 0.20
1985	- 0.20
1986	- 0.34
	- 0.81

- 0.81 ÷ 4 years = - 0.20 historic or normal basis

When your recording day falls on a holiday, record either the day before or the day after the holiday. When completed, this form provides a history of the basis for the past several years. The average historic basis can be obtained by adding up the basis recorded for each of the years and dividing by the number of years. A form that provides for recording prices and basis for more than one market is illustrated in Figure 3-14.

Basis as a Relationship between Cash and Futures Prices

Figure 3-15 shows the actual cash prices at one southwestern Ohio elevator from October 1985 to July 1986 compared to the May futures on the Chicago Board of Trade during that same period of time. The basis on July futures at any time is the number of cents difference between these two prices. Note that the two prices move up and down as the marketing season advances. This is due to changes in the supply and demand situation as seen by the buyers and sellers.

Figure 3-16 illustrates another method of showing the same basis information given in Figure 3-15. Figure 3-16 shows only the basis and not the actual cash and future prices. If you are interested only in basis, this graph is easier to read than the preceding one. The "O" line represents the futures price and the fluctuating line indicates how much the basis is under or over the futures market at any given time. (The straight "O" line does not mean that the futures price is constant during the marketing period, however.) It may help you to visualize your local basis if you use your basis records to construct your own charts like the one in Figure 3-16. You may want to use graph paper for this purpose.

(continued on page 87)

Corn prices for October (month)

Dec. Cash Basis	Date	SW Ohio Cash Price	Futures Prices-Chicago Board of Trade			
			Dec.	March	May	July
-.07	First Week 1983	3.45	3.52			3.55
-.20	First Week 1984	2.60	2.80			2.90
-.20	First Week 1985	2.04	2.24			2.44
-.34	First Week 1986	1.40	1.74			1.90
-.30	First Week 1987	1.55	1.85			2.05
-.05	Second Week 1983	3.53	3.58			3.51
-.08	Second Week 1984	2.70	2.78			2.92
-.15	Second Week 1985	2.04	2.19			2.42
-.36	Second Week 1986	1.29	1.65			1.85
-.38	Second Week 1987	1.52	1.90			2.15
-.10	Third Week 1983	3.27	3.37			3.38
-.17	Third Week 1984	2.61	2.78			2.94
-.29	Third Week 1985	1.92	2.21			2.41
-.40	Third Week 1986	1.23	1.63			1.84
-.37	Third Week 1987	1.58	1.95			2.25
-.06	Fourth Week 1983	3.40	3.46			3.35
-.20	Fourth Week 1984	2.58	2.78			2.93
-.27	Fourth Week 1985	2.05	2.32			2.48
-.37	Fourth Week 1986	1.35	1.72			1.89
-.40	Fourth Week 1987	1.58	1.98			2.25

Figure 3-13 Form for keeping grain price records.
A separate form would be kept for each record month and each market location.

Figure 3-14 WEEKLY BASIS CHART[1]

Commodity Corn

Month and Week	Closing Futures Price Futures Contract Month[2]								Local Cash Prices Location[3]			Basis Location[4] Toledo		Cinci.	
	July	Dec							Toledo	Cinci.		July		July	
08/07/86	1.89	1.68							1.74	1.67		-0.15		-0.22	
08/14/86	1.91	1.73							1.74	1.75		-0.17		-0.16	
08/21/86	1.89	1.69							1.66	1.70		-0.23		-0.19	
08/28/86	1.86	1.65							1.55	1.50		-0.31		-0.36	
09/04/86	1.86	1.62							1.47	1.46		-0.39		-0.40	
09/11/86	1.83	1.62							1.50	1.42		-0.33		-0.41	
09/18/86	1.85	1.65							1.52	1.40		-0.33		-0.45	
09/25/86	1.87	1.70							1.55	1.50		-0.32		-0.37	
10/02/86	1.90	1.74							1.61	1.56		-0.24		-0.34	
10/09/86	1.85	1.65							1.48	1.40		-0.37		-0.45	
10/16/86	1.84	1.63							1.40	1.43		-0.44		-0.41	
10/23/86	1.87	1.69							1.45	1.50		-0.42		-0.37	
10/30/86	1.91	1.74							1.51	1.60		-0.40		-0.31	
11/06/86	1.90	1.72							1.50	1.65		-0.40		-0.25	
11/13/86	1.88	1.72							1.52	1.72		-0.36		-0.16	
11/20/86	1.86	1.68							1.56	1.74		-0.30		-0.12	
11/28/86	1.84	1.65							1.60	1.73		-0.24		-0.11	
12/04/86	1.80	1.61							1.56	1.72		-0.24		-0.08	
12/11/86	1.76	1.58							1.55	1.70		-0.21		-0.06	
12/18/86	1.74	1.52							1.52	1.60		-0.22		-0.14	
12/26/86	1.72	1.81							1.49	1.60		-0.23		-0.12	
1/02/87	1.69	1.77							1.43	1.54		-0.26		-0.15	
1/08/87	1.66	1.74							1.42	1.52		-0.24		-0.14	
1/15/87	1.68	1.76							1.46	1.60		-0.22		-0.08	
1/22/87	1.68	1.75							1.48	1.62		-0.20		-0.06	

[1]This form may be used to keep your ongoing price and basis records. (See page 159.)
[2]Enter the futures price for the nearby futures contract.
[3]For each selling location, grain elevator, enter the price bid for Week 1.
[4]Subtract the nearby futures from the local cash price and enter basis.

Figure 3-15 Cash corn price at a southwestern Ohio elevator and Chicago Board of Trade July futures for 1985-1986. *Source:* Cooperative Extension Service, The Ohio State University.

Figure 3-16 Local basis for a southwestern Ohio elevator - Cash corn price minus Chicago Board of Trade July futures, 1985-1986. *Source:* Coooperative Extension Service, The Ohio State University

Another method of using a chart to report basis is illustrated in Figure 3-17. This is referred to as **running basis**. The futures delivery month used to determine the basis is changed as each futures delivery month is passed during the marketing year. The illustration shows the Columbus running basis for wheat during 1983. The change from one futures delivery month, March, May, July, September and December, is indicated by the vertical price line which shows the price change as the market rolls over from one delivery month to the next.

Basis information can be displayed by using graphical computer printouts (Figure 3-18). This printout is also for a running basis.

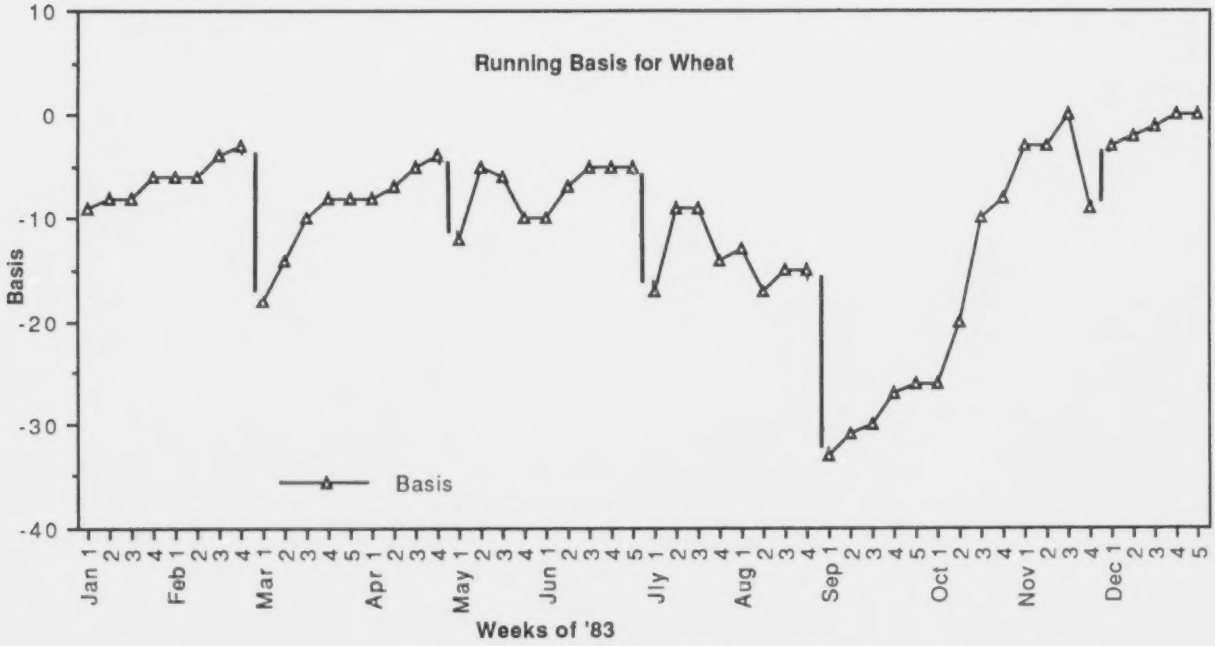


Figure 3-17 Running basis for wheat at the Columbus market for wheat during 1983. *Adapted from:* Ohio Farm Bureau ACRES Electronic Market News Service chart.

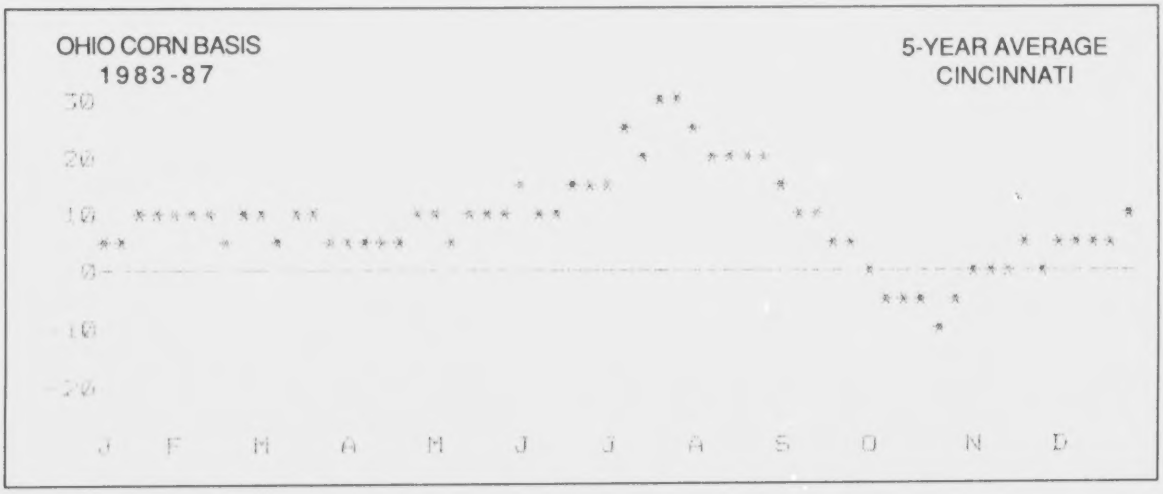


Figure 3-18 Graphical computer printout showing the 1983-1987 five-year average corn basis for the Cincinnati market. *Source:* Ohio Farm Bureau ACRES Electronic Market News Service.

The basis can also be presented in a tabular computer printout format (Figure 3-19). The cash price bids reported in this printout are for the Cincinnati cash soybean market reported weekly on the dates given. The basis is for the July Chicago Board of Trade soybean futures market on the same dates.

Figure 3-20 gives the historic basis and is probably the most usable of all. The graph

JULY BEANS BASIS ($)

DATE	JULY	CRD11	BASIS
01/02/86	5.67	5.53	-0.14
01/09/86	5.74	5.54	-0.20
01/16/86	5.62	5.50	-0.12
01/23/86	5.56	5.52	-0.04
01/30/86	5.58	5.56	-0.02
02/06/86	5.48	5.50	0.02
02/13/86	5.42	5.48	0.06
02/20/86	5.32	5.39	0.07
02/27/86	5.32	5.44	0.12
03/06/86	5.42	5.53	0.11
03/13/86	5.40	5.49	0.09
03/20/86	5.36	5.45	0.09
03/27/86	5.34	5.51	0.17
04/03/86	5.25	5.38	0.13
04/10/86	5.22	5.38	0.16
04/17/86	5.21	5.40	0.19
04/24/86	5.22	5.41	0.19
05/01/86	5.34	5.41	0.07
05/08/86	5.33	5.46	0.13
05/15/86	5.30	5.40	0.10
05/22/86	5.31	5.45	0.14
05/29/86	5.31	5.44	0.13
06/05/86	5.32	5.47	0.15
06/12/86	5.32	5.47	0.15
06/19/86	5.33	5.48	0.15
06/26/86	5.21	5.33	0.12
07/03/86	5.18	5.24	0.06
07/10/86	5.26	5.32	0.06
07/17/86	5.45	5.37	-0.08
10/02/86	5.11	4.92	-0.19
10/09/86	5.00	4.67	-0.33
10/16/86	5.03	4.73	-0.30
10/23/86	5.04	4.82	-0.22
10/30/86	5.14	5.00	-0.14
11/06/86	5.10	5.06	-0.04
11/13/86	5.12	5.15	0.03
11/28/86	5.08	5.10	0.02
12/04/86	5.07	5.05	-0.02
12/11/86	5.00	4.97	-0.03
12/18/86	4.91	4.86	-0.05
12/26/86	4.99	4.97	-0.02
01/02/87	4.98	4.92	-0.06
01/08/87	4.97	4.99	0.02
01/15/87	5.00	5.00	0.00
01/23/87	4.98	5.02	0.04

Figure 3-19 Soybean basis presented in a tabular computer printout format. Cash price is the bid for one southwestern Ohio grain market (CRD 11). July Chicago Board of Trade futures quotation is used. *Source:* Cooperative Extension Service, The Ohio State University.

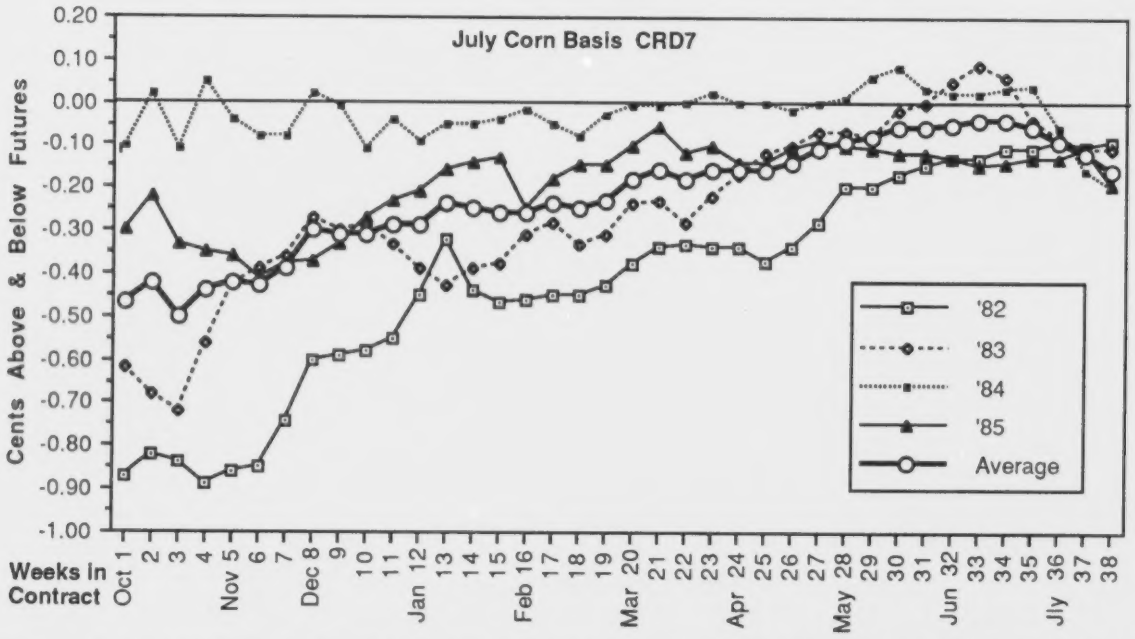


Figure 3-20 Local historic basis for corn in a local southwestern Ohio grain market, 1982-1985. The bold line shows the average for the four-year period. Data for graph given in Figure 3-21. *Adapted from:* Cooperative Extension Service data, The Ohio State University.

shows July futures which are charted for 38 weeks from October into July for four years (based on the data in Figure 3-21). This type of information gives you a history of basis for your elevator. It can be very valuable when you are making grain and marketing decisions. The historic or normal basis is best represented by the average basis for the four-year period.

WEEKS		82	83	84	85	AVG.	RANGE	
OCT	1	-0.87	-0.62	-0.10	-0.30	-0.47	-0.10	-0.87
	2	-0.82	-0.68	0.02	-0.22	-0.42	0.02	-0.82
	3	-0.84	-0.72	-0.11	-0.33	-0.50	-0.11	-0.84
	4	-0.89	-0.56	0.05	-0.35	-0.44	0.05	-0.89
NOV	5	-0.86	-0.43	-0.04	-0.36	-0.42	-0.04	-0.86
	6	-0.85	-0.39	-0.08	-0.41	-0.43	-0.08	-0.85
	7	-0.74	-0.36	-0.08	-0.38	-0.39	-0.08	-0.74
DEC	8	-0.60	-0.27	0.02	-0.37	-0.30	0.02	-0.60
	9	-0.59	-0.30	-0.01	-0.33	-0.31	-0.01	-0.59
	10	-0.58	-0.29	-0.11	-0.27	-0.31	-0.11	-0.58
	11	-0.55	-0.33	-0.04	-0.23	-0.29	-0.04	-0.55
JAN	12	-0.45	-0.39	-0.09	-0.21	-0.29	-0.09	-0.45
	13	-0.32	-0.43	-0.05	-0.16	-0.24	-0.05	-0.43
	14	-0.44	-0.39	-0.05	-0.14	-0.25	-0.05	-0.44
	15	-0.47	-0.38	-0.04	-0.13	-0.26	-0.04	-0.47
FEB	16	-0.46	-0.31	-0.02	-0.25	-0.26	-0.02	-0.46
	17	-0.45	-0.28	-0.05	-0.18	-0.24	-0.05	-0.45
	18	-0.45	-0.33	-0.08	-0.15	-0.25	-0.08	-0.45
	19	-0.43	-0.31	-0.03	-0.15	-0.23	-0.03	-0.43
MAR	20	-0.38	-0.24	-0.01	-0.10	-0.18	-0.01	-0.38
	21	-0.34	-0.23	-0.01	-0.06	-0.16	-0.01	-0.34
	22	-0.33	-0.28	0.00	-0.12	-0.18	0.00	-0.33
	23	-0.34	-0.22	0.02	-0.10	-0.16	0.02	-0.34
APR	24	-0.34	-0.17	0.00	-0.14	-0.16	0.00	-0.34
	25	-0.37	-0.12	0.00	-0.14	-0.16	0.00	-0.37
	26	-0.34	-0.10	-0.02	-0.11	-0.14	-0.02	-0.34
	27	-0.28	-0.07	0.00	-0.09	-0.11	0.00	-0.28
MAY	28	-0.20	-0.07	0.01	-0.10	-0.09	0.01	-0.20
	29	-0.20	-0.08	0.06	-0.11	-0.08	0.06	-0.20
	30	-0.17	-0.02	0.08	-0.12	-0.06	0.08	-0.17
	31	-0.15	0.00	0.03	-0.12	-0.06	0.03	-0.15
JUN	32	-0.13	0.05	0.02	-0.13	-0.05	0.05	-0.13
	33	-0.13	0.09	0.02	-0.15	-0.04	0.09	-0.15
	34	-0.11	0.06	0.03	-0.14	-0.04	0.06	-0.14
	35	-0.11	-0.04	0.04	-0.13	-0.06	0.04	-0.13
JUL	36	-0.09	-0.08	-0.06	-0.13	-0.09	-0.06	-0.13
	37	-0.10	-0.11	-0.16	-0.11	-0.12	-0.10	-0.16
	38	-0.09		-0.20	-0.19	-0.16	-0.09	-0.20
Range		-0.09	0.09	0.08	-0.06	-0.04		
		-0.89	-0.72	-0.20	-0.41	-0.50		
Total Basis Improvement		0.80	0.81	0.28	0.35	0.46		

Figure 3-21 Corn July contract for a local southwestern Ohio grain market. Shown graphically in Figure 3-20. *Source:* Cooperative Extension Service, The Ohio State University.

Offering a Premium for Grain

Usually the local cash price is below the futures price with the basis being referred to as xx cents under. This is because the basis usually reflects the cost of carrying the grain from the time the cash price of the grain was bid to the time the futures contract expires.

There may be times when your local grain market has an unusually high demand for grain. Possible causes for this demand might be costly empty railroad cars that need to be filled, an order for grains that must be filled, or any other situation that could cause a local elevator manager to bid up the cash price of grain. For example, let's say the March futures price for corn on the Chicago Board of Trade was $1.66. The local elevator basis bid for your corn on December 17 was $1.75. The local basis following the formula would be:

Dec. 17	Local cash bid	$1.75
Dec. 17	March futures, Chicago	- $1.66
Dec. 17	Local basis	+.09

This basis would be quoted as "9 cents over." (In making the subtraction in the formula, watch the + and - signs. The remainder takes the sign of the *larger* number.) This is sometimes referred to as an inverted basis. (See Figures 3-15 and 3-16.) This 9-cents-over basis situation means the elevator manager is offering you a premium for your corn.

Carrying Costs for Grain Sold on Futures Market

Basis theory suggests that at harvest the difference between the price of cash grain at your local elevator and the nearest futures price should be equal to the cost of carrying the grain from the harvest to the nearest futures month. Thus the futures price should be above the cash price. Usually the futures price of each of the following futures delivery months increases approximately enough to cover the additional carrying charges. Whether or not this happens will depend upon the availability of storage space and the supply and demand situation for grain. Your local basis should include the following carrying charges:

- *elevator margin* which is the profit made by the grain elevator
- *charges for transporting* the grain from your local elevator to a specified delivery point
- *insurance* on the grain in storage
- *shrink* caused by handling the grain and moisture removal
- *interest* on the investment in the grain
- *storage costs* from the time the local cash price is established until the future delivery month

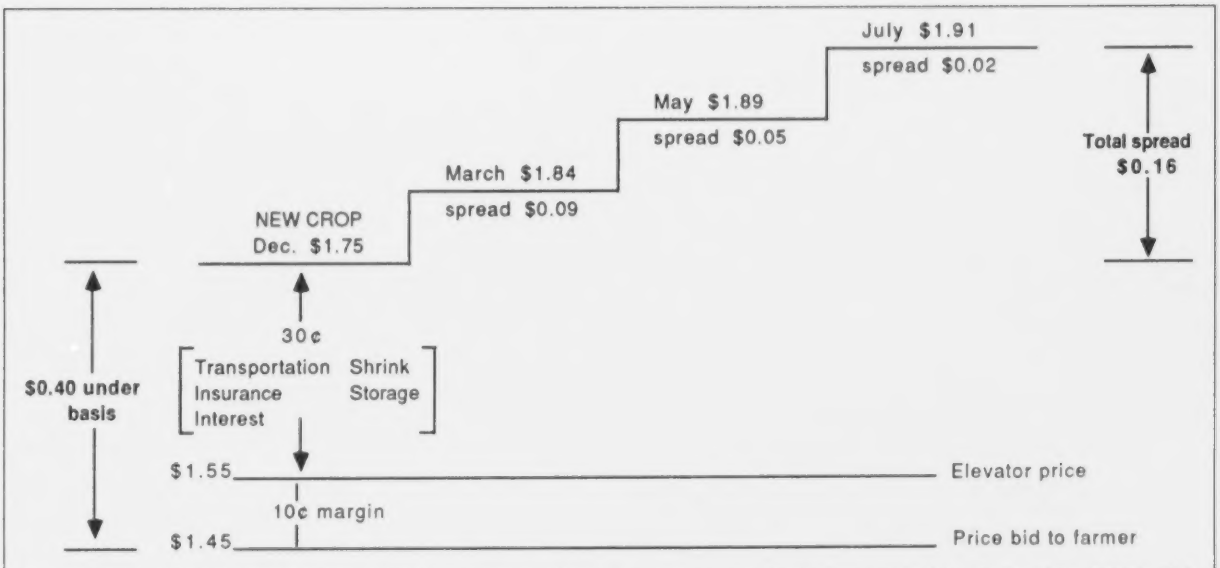
This is known as a **carrying charge** market. (See Figure 3-22.)

If these costs listed were the only factors that affected basis, the amount of the basis could be easily figured and would change very little from one year to another. However, many of the factors listed earlier in this unit that affect the price of grain cause unusual up or down movements in the market. Therefore the actual amount of the basis at any given time is difficult to predict. This is especially true during the harvest period.

Basis and Local Transportation Costs

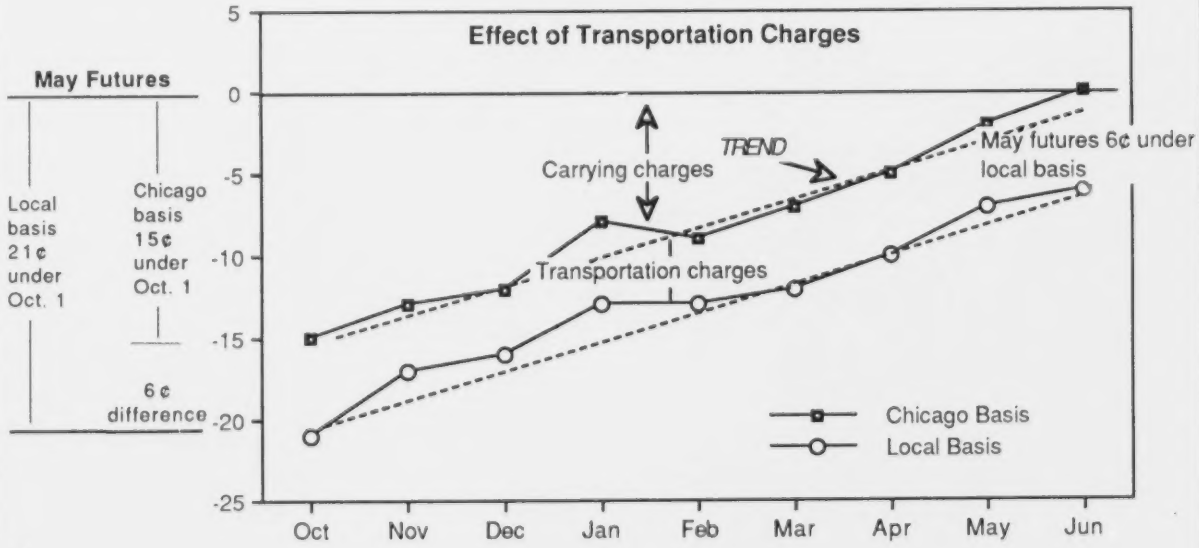
Since the basis usually includes the carrying charge, it is likely that the delivery month futures price will be greater than the local cash price at harvest time. At the time the futures contract ends (May futures in May), the cash price and the futures price tend to come together. This is because the carrying charges decrease as the time remaining on the contract decreases. Also the buying low and selling high actions of speculators in the cash and futures markets tend to bring the two markets together as the carrying charges decrease over time. This action of buying low in one market (cash or futures) and selling high in another (futures or cash) at a profit is called **arbitrage**.

The cash price at the local elevator will not meet the futures price at the end of a contract because of the transportation charges from the local point to the futures contract delivery point. (See Figure 3-23.) There will be times when this is not true due to an unusual local supply and demand situation.



Futures prices and local bid for corn on November 4, 1986. The increase in the futures price from December 1986 to July 1987 pays $0.16 extra carrying charges ($1.91 – 1.75 = $0.16). (The advance of futures prices usually covers these charges.) If the spread declined from December through July, the signal would be that the market did not want grain to be stored.

Figure 3-22 The advance of futures prices from one delivery month to the next.



The basis tends to improve (narrow) as the futures delivery month approaches. The difference in the basis at the local point and the distant delivery point reflects the transportation charges and the local supply and demand situation. (Due to the many variations in the latter, actual situations are seldom as perfect as this example.)

Figure 3-23 The effect of transportation charges on local basis.

Quoting Basis Rather than Cash or Futures Prices

In the grain trade it is common to quote the basis rather than the cash or futures prices. Thus the basis for corn would be 32 cents under on November 4 as shown in the cash basis illustration (page 83), or as 9 cents over as shown when offering a premium for corn (page 90).

While the basis fluctuates throughout the marketing year, as shown in Figure 3-17, this up and down movement is more predictable than the cash grain price. (See cash price line in Figure 3-16.) Usually the basis pattern is predictable because carrying costs and transportation charges are known and the arbitrage action of the speculators tends to bring the cash and futures markets together as the termination time of the futures contract approaches.

Because of the carrying charges, it is likely that the delivery month futures price will be higher than the local cash price. The basis will have a minus sign since the cash price would be under the futures price. As the futures contract time approaches, carrying charges, which decrease with less time remaining in storage, and the arbitrage action of speculators combine to bring the two prices together. The cash price and the futures price may not come together due to unusual situations affecting supply and demand. Transportation may not be available, thus hurting supply, strikes may disrupt the flow of grain through the marketing channels, storage space may not be available, waterways may be frozen, and other factors too can cause disruption of the normal movement of grain.

Interpreting Basis Patterns

In using the basis to make marketing decisions it is important to understand the terminology used in describing the different patterns or movements the basis may take.

Improving Basis

During a period of time, the basis may change from weak to strong as shown in Figure 3-24. In this example the basis is weak on October 1 at –$0.40 (40¢ under). By November 1, the basis is strong at –$0.25 (25¢ under).

There may be times when the basis is *over* the futures market; that is, the local cash price is above the near futures price. A basis would be improving if it moved from $0.25 over on October 1 to $0.50 over on November 1. This is shown in Figure 3-25 and is known as an **inverted basis**. In this case, to state that the basis is narrowing or improving is not true, since the inverted basis improves as it widens.

Weakening Basis

During a period of time, the basis may also change from strong to weak as shown in Figure 3-26. In this example the basis is strong on October 1 at -$0.25 (25¢ under). By November 1, the basis is weak at -$0.40 (40¢ under).

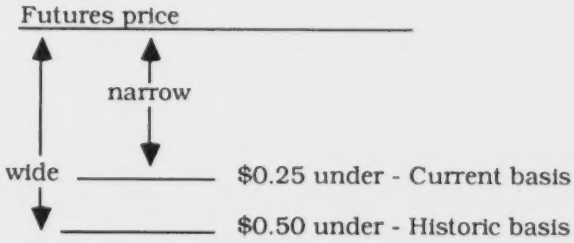
Historic (Normal) Basis

A basis may be strong or weak in relation to the historic or normal basis for the same period.

A basis is *strong* if it is narrow relative to the historic basis for the same period.

For example:

- If the five-year basis (historic) is –$0.50 (cash price is $0.50 under the futures price) and the current basis is –$0.25 (25¢ under), it is ***strong*** relative to the historic average.



- A current basis is also ***strong*** if the historic basis is $0.15 under and the current basis is $0.10 over, which is an inverted basis. The inverted (+ or over) basis cannot be referred to as wide or narrow. Rather it is positive or strong when compared to a "–" (minus) or under basis.

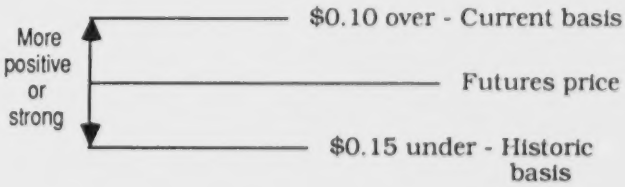
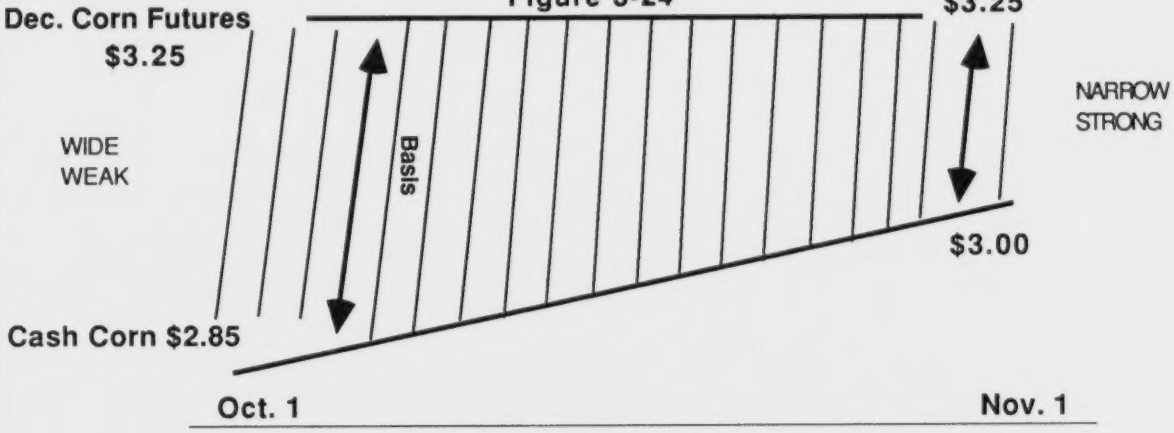


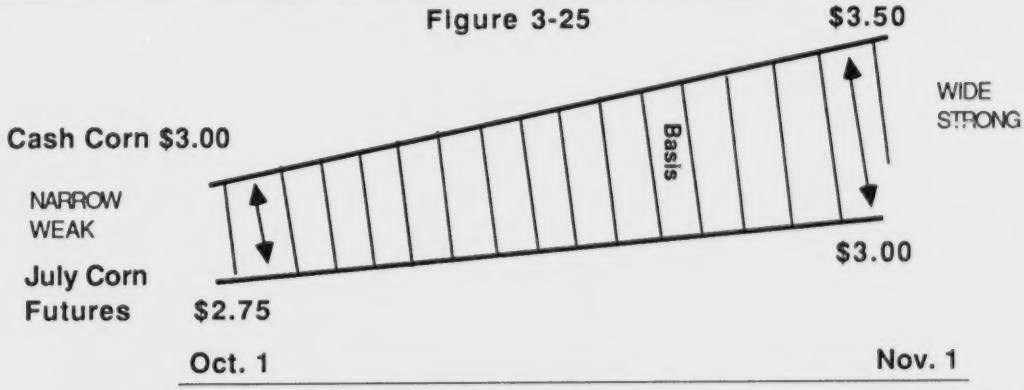
Figure 3-24



Oct. 1 Basis = 40¢ under (– 40¢) (cash price $2.85 – Dec. futures $3.25 = – 40¢)
Nov. 1 Basis = 25¢ under (– 25¢) (cash price $3.00 – Dec. futures $3.25 = – 25¢)

Improving basis. Basis is going up or strengthening.

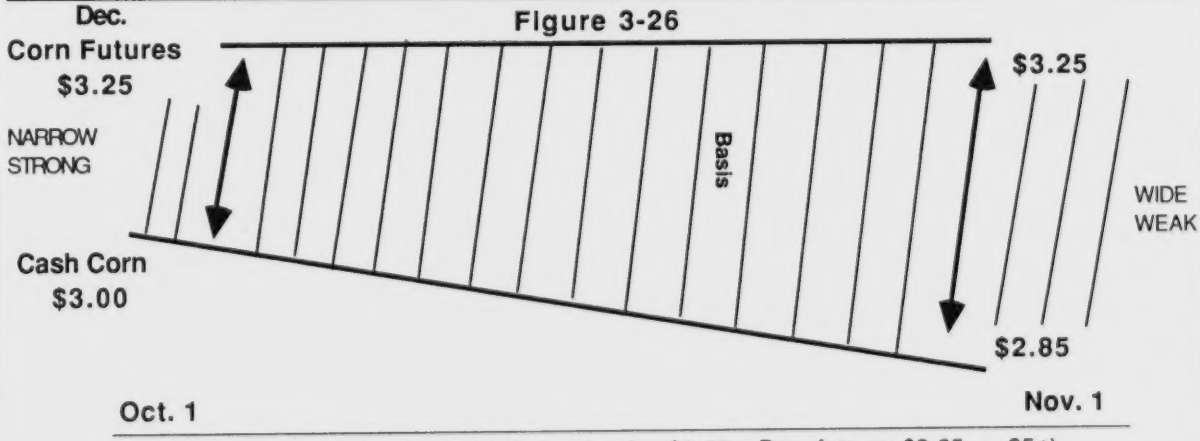
Figure 3-25



Oct. 1 Basis = 25¢ over (+25¢) (cash price $3.00 – July futures $2.75 = +25¢)
Nov. 1 Basis = 50¢ over (+50¢) (cash price $3.50 – July futures $3.00 = +50¢)

An improving inverted basis. (Basis is going up or strengthening.) When the basis is inverted, it improves as it widens and weakens as it narrows.

Figure 3-26

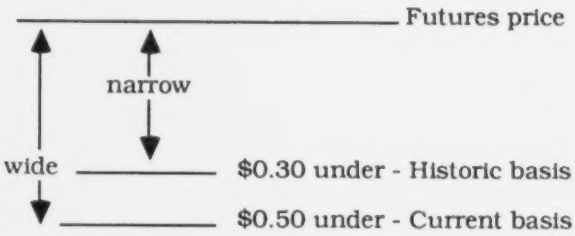


Oct. 1 Basis = 25¢ under(–25¢) (cash price $3.00 – Dec. futures $3.25 = –25¢)
Nov. 1 Basis = 50¢ under(–40¢) (cash price $2.85 – Dec. futures $3.25 = –40¢)

Basis is weakening or going down.

Source: Cooperative Extension Service, The Ohio State University

● A basis is ***weak*** if it is wide relative to the historic basis for the same period. For a five-year historic period the basis is -$0.30 (30¢ under). The current basis for the same period is -$0.50. This is a weak basis relative to the historic basis.



Factors Affecting Basis Strength

The basis tends to strengthen during the marketing year with the cash and futures prices often coming together at the end of the futures contract. However, daily, monthly and annual fluctuations may occur. The factors causing these fluctuations are related but have unique differences. Several factors causing basis to fluctuate are:

1. **Supply and demand**. Basis will be stronger if the supply of grain to the total marketing system or to your local elevator is scarce relative to the demand. For example, your elevator may have a train on the track waiting to be loaded or an open contract that needs to be filled. If grain is not coming in fast enough to meet the demand, the elevator manager will be saying, "We want your grain."

   On the other hand, if grain supplies are adequate to meet or surpass demands, or storage is not available to hold the current harvest, a weaker basis results. The market is saying, "We don't want your grain at this time."

2. **Protein supply**. The protein content of wheat in major wheat producing states influences local basis. If the protein supply is limited relative to demand, basis weakens.

3. **Condition of crops**. High moisture may tax drying facilities and market grade requirements and result in a weaker basis during the harvest period.

4. **Transportation**. The availability of transportation (trucks, barges, trains and ships) to move the crop either at harvest or during the market season can affect basis. For example:

   ♦ When transportation equipment is used to move materials other than grain, a shortage of transportation for grain can result, thus causing the basis to weaken.

   ♦ Increases in the costs of transportation, such as high fuel or labor costs, can also weaken the basis.

   ♦ The basis within a grain market may vary depending upon the transportation used. A market may use barges until the river freezes and then use rail transportation. If rail shipments are more costly than barges, the basis will be weakened.

   If grain transportation is readily available and/or costs are relatively low, the basis will be strengthened. Conversely, if adequate transportation is not available and/or costs are relatively high, the basis will weaken.

5. **Storage availability**. The amount of storage available at a given location or market area can affect basis. If storage facilities are committed or filled or demand for storage space is increasing, the basis will respond by weakening. The market is telling the producer to find storage elsewhere, such as on the farm.

6. **Storage costs**. The cost of storage is affected by two major factors: 1) the costs of building and maintaining storage space and 2) interest rates.

   ♦ If inflation causes storage construction and maintenance costs to increase for both commercial storage operations and for on-farm storage facilities, the cost of storing grain will also increase. The result would be a weakening basis.

   ♦ Interest charges will be one of two kinds, either foregone interest that would be earned from the cash sale of grain, or interest actually paid to provide working capital instead of selling grain. In either

case interest costs depend upon the length of time you own the grain and the interest rate. The higher the interest rates and the longer the storage period, the weaker the basis.

7. **Seasonability of harvest**. Grain crops are harvested over a short period of time. This places great demand on handling and transportation facilities during the harvest period. While some of the above factors such as transportation, crop conditions, and supply affect the basis at different times during the marketing season, they combine to have the largest effect on harvest basis. As the market season moves beyond the harvest period, basis tends to strengthen as the demand for handling facilities decreases.

8. **Location differences.** Basis varies among markets for various reasons.

   - The local grain markets that are closer to common delivery points such as Chicago or Toledo tend to have lower transportation costs. This strengthens their basis over that of more distant markets.

   - Due to location some markets do not have direct transportation lines available to ship grain into the Northeastern United States.

   - Markets located on navigable rivers will have barges available, while other inland markets must depend upon the railroad.

   - Some markets have ocean port facilities available.

All these factors affect the basis for individual markets. Those with favorable locations should be able to offer a stronger basis than those with less fortunate situations.

In conclusion:

1) Basis usually strengthens and the cash and futures market tend to come together as the futures contract maturity month approaches. This occurs because of:

   - The increase of cash price to cover storage costs.

   - The arbitrage action of speculators (buying low [cash or futures] and selling high [futures or cash]).

2) Transportation variables cause basis to vary among locations, and other factors cause daily, weekly and annual fluctuations in basis patterns.

Obtaining Basis Information

Basis information was not readily available to grain producers in the past. Records had to be kept, telephone calls made to market outlets and brokers, mathematical calculations made, and charts prepared before basis information could be used in grain marketing decision making.

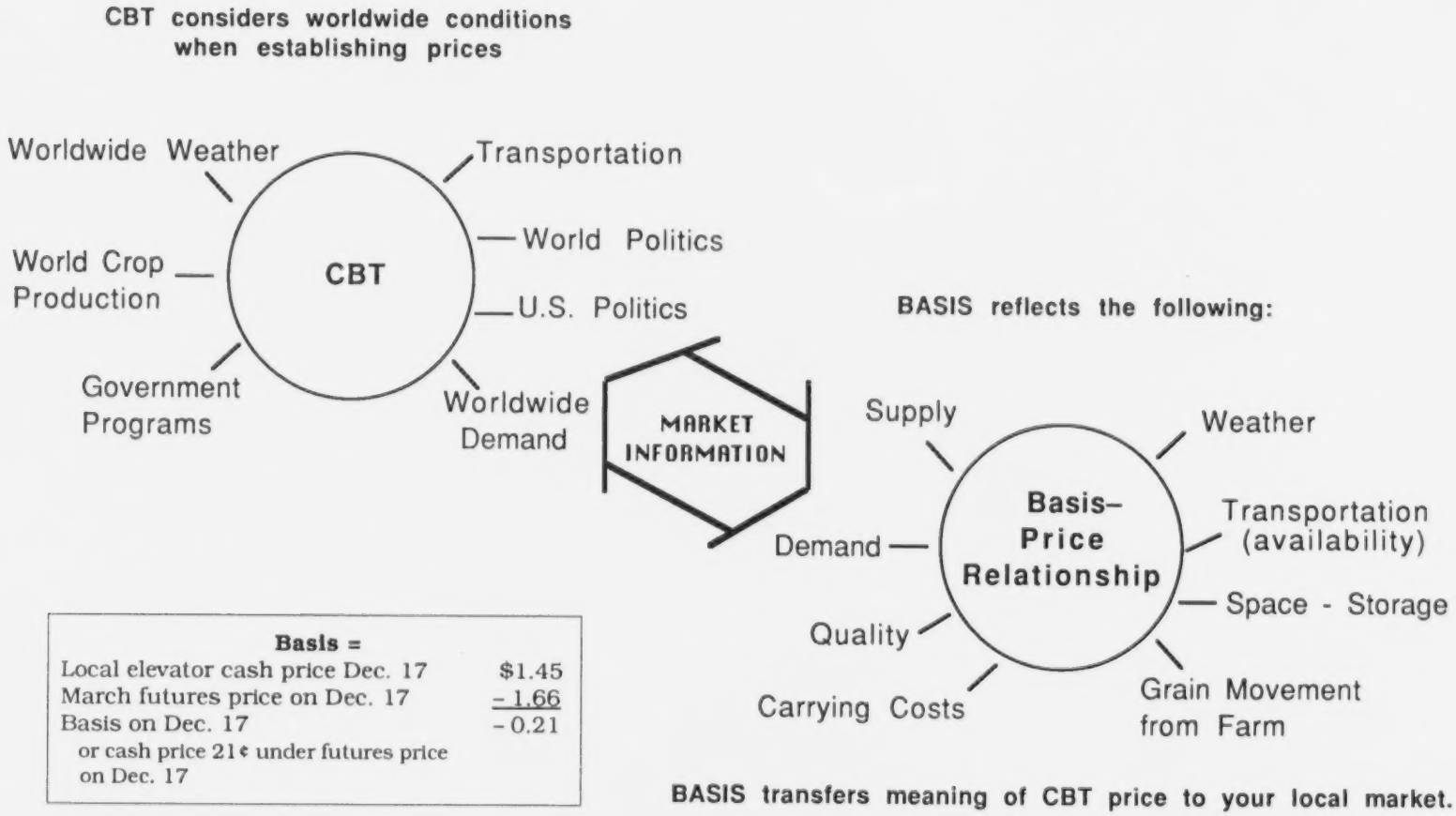
However, help for the producer in this area is now becoming available through the use of computer programs. These programs have been designed to provide you with current and historical basis information that you may use. For a partial listing of sources of market news information see Figure 1-4, pages 8-11.

Basis Relates Local Markets to World Markets

Figure 3-27 illustrates how the Chicago Board of Trade applies worldwide information in interpreting the supply and demand for grain in establishing prices. Local markets follow the lead of the Chicago Board of Trade in establishing their prices. Local prices also reflect the local supply and demand situation, the availability of storage, and available transportation. The basis (local cash price minus futures price) reflects the relationship between the futures market and your local cash grain market. An example of this is the following:

Basis =	
Local elevator cash price Dec. 17	$1.45
March futures price on Dec. 17	- 1.66
Basis on Dec. 17	- 0.21
or cash price 21¢ under futures price on Dec. 17	

The strengthening or weakening of the basis more accurately predicts the supply and demand situation, the availability of storage space, and the availability of transportation



Basis =	
Local elevator cash price Dec. 17	$1.45
March futures price on Dec. 17	- 1.66
Basis on Dec. 17	- 0.21
or cash price 21¢ under futures price on Dec. 17	

Figure 3-27 Chicago Board of Trade (CBT) gives worldwide consideration to the grain market.
Adapted from grain marketing seminar presentation by Tom Weidner, Grain Marketing Consultant

facilities than the more widely fluctuating cash and futures prices.

The futures price should not be taken as a forecast of the price of grain at the time the contract ends. It only reflects what buyers and sellers of grain *think* the supply and demand situation will be when the futures contract delivery month arrives.

Speculators are continually buying and selling because they think prices will change. A change of price is the only way they can hope to make a profit. Hedgers want to lock in a price that appears more favorable than they expect later prices to be. They may be willing to accept a price that is lower than that indicated in the futures market. As the marketing season advances, changes in the supply and demand situation are constantly taking place as has been previously described. These changes influence whether the market will be bid up or down. None of the participants in the market actually thinks that a futures price will remain steady throughout the time span of the contract. The fluctuation in the market will be reflected in the strengthening or weakening of the basis. Thus, understanding the basis can give you a valuable tool to use in marketing your grain. (Highlights of futures trading in wheat, corn and soybeans on the Chicago Board of Trade are given in Figure 3-28.)

Some Uses of Basis in Grain Marketing

The basis at any given time is giving the farmer certain information. In general, a stronger or narrower-than-usual basis is telling the farmer that the market has a temporary high demand for grain. This could be caused by a need of the local or terminal elevator for grain to complete a trainload or for various other temporary needs. The price of cash grain at this time is being bid up in relation to futures prices. Conversely, a wider-than-usual basis indicates that at this particular time the local or terminal elevator does not want grain. This condition could be especially true at harvest periods. These situations bring about a general rule of marketing as follows.

Whenever possible sell grain when the basis is strong or narrow.

or the opposite

Whenever possible avoid selling grain when the basis is weak or wide.

The basis can be used in various ways to aid a farmer in making the best possible decisions in marketing. Some of these are:

1. Predicting returns for storage

Situation:

Cash price for corn Nov. 1	$1.51
July futures close on Nov. 1	2.09
Usual basis for July	- 0.23

$1.51 - $2.09 = - $0.58 basis for Nov. 1 on July futures
- $0.58 - (-$0.23) =- $0.35 expected gain from storage from November until July

In this case, if the usual basis for July became the actual basis, 35 cents could actually be gained by storage from November until July. If a farmer's actual storage costs plus interest costs were less than this, hedging and storage might be considered wise marketing.

2. Predicting a potential price to be received for grain at a later date.

Situation:

March soybeans futures close on Oct. 20	$4.90
Usual basis in March	- $0.33

$4.90 - $0.33 = $4.57 potential cash price of soybeans in March

The term **potential price** is used here to show what the actual price could be at a future time. If the price of March futures did not change from October 20 until March and if the usual basis prevailed at market time in March, the potential price of $4.57 would become the actual cash price at that time.

3. Checking basis on contract price offerings

Situation:

December corn futures close on June 10	$1.80
Contract price offered on June 10 for harvest delivery	$1.42

$1.42 - $1.80 = - $0.38 the harvest cash basis on which this contract is offered

Figure 3-28 Highlights of Futures Trading

Chicago Board of Trade
Corn Futures
Contract Highlights

Basic Trading Unit	5,000 bushels
Deliverable Grade	No. 2 Yellow and substitutions at differentials established by the Exchange
Price Quotation	Cents and quarter cents per bushel
Minimum Fluctuation	One-quarter (¼) cent per bushel ($12.50 per contract)
Daily Price Limit	10 cents per bushel ($500 per contract) above and below the previous day's settlement price
Contract Months	March, May, July, September and December
Contract Year	Starts with December contracts and ends with September contracts
Trading Hours	9:30 a.m. to 1:15 p.m. (Chicago time) except on the last trading day when trading ends at noon
Last Trading Day	Seven business days before the last business day of the month
Last Delivery Day	Last business day of the month
Ticker Symbol	C
Date Trading Began	January 2, 1877

Chicago Board of Trade
Soybean Complex Futures
Contract Highlights

	Soybeans
Basic Trading Unit	5,000 bushels
Deliverable Grade	No. 2 Yellow and substitutions at differentials established by the Exchange
Price Quotation	Cents and quarter cents per bushel
Minimum Fluctuation	One-quarter (¼) cent per bushel ($12.50 per contract)
Daily Price Limit	30 cents per bushel ($1,500 per contract) above and below the previous day's settlement price
Contract Months	January, March, May, July, August, September and November
Contract Year	Starts in September and ends in August
Trading Hours	9:30 a.m. to 1:15 p.m. (Chicago Time)
Last Trading Day	Seventh business day preceding the last business day of the month
Last Delivery Day	Last business day of the month
Ticker Symbol	S
Date Trading Began	October 5, 1936

Chicago Board of Trade
Wheat Futures
Highlights

Basic Trading Unit	5,000 bushels
Deliverable Grade	No. 2 Soft Red, No. 2 Hard Red Winter, No. 2 Dark Northern Spring, No. 1 Northern Spring and substitutions at differentials established by the Exchange
Price Quotation	Cents and quarter cents per bushel
Minimum Fluctuation	One-quarter (¼) cent per bushel ($12.50 per contract)
Daily Price Limit	20 cents per bushel ($1,000 per contract) above and below the previous day's settlement price
Contract Months	July, September, December, March and May
Contract Year	Starts with July contracts and ends with May contracts
Trading Hours	9:30 a.m. to 1:15 p.m. (Chicago Time)
Last Trading Day	Seventh business day preceding the last business day of the month
Last Delivery Day	Last business day of the delivery month
Ticker Symbol	W
Date Trading Began	January 2, 1877

When the elevator offers a contract price, it is using futures and assuming a certain basis. The basis which it uses to arrive at a contract price can be figured in this manner. If you have figures of the usual harvest cash basis, you can compare your figures with the ones the elevator uses to help decide if this is a good contract offering.

4. Comparing contract offering to potential cash price

Situation:

November soybean futures close on June 20	$5.15
Contract price offered June 20 for harvest delivery	$4.65
Usual basis at harvest	- 0.45

$5.15 - $ 0.45 = $4.70 potential price of soybeans at harvest. This, of course, is speculative as compared to a guaranteed price of $4.65.

5. Speculating on basis improvement

Situation:

Storage costs - November to May	$0.28
Cash price for corn on November 1	$2.12
May futures close on November 1	$2.76
Usual basis in May	- $0.25

$2.76 - $2.12 = $0.64 basis on May futures Nov. 1

$0.64 - $0.25 = $0.39 expected gain in basis Nov. 1 to May

$0.39 - $0.28 = $0.11 expected gain from basis improvement

In this illustration, if the corn was stored and the -$0.25 usual basis became the actual basis in May, the farmer could earn 28 cents storage costs plus a gain of 11 cents due to basis improvement. However, the farmer would not have use of the money during storage and so would have to subtract the interest charge from the gain in basis to arrive at the expected profit from storing.

CHAPTER 4

MARKETING ALTERNATIVES

You need to plan a grain marketing program to help you in making other management decisions. You cannot realistically expect to get the highest possible price for your grain since this may occur on only one day throughout the marketing season. However, following a well thought out, written grain marketing plan will assist you in selling your grain when prices are at their most favorable levels. Your plan will need to consider several grain marketing alternatives. You will also change your plan during the marketing season as more market information becomes available. This chapter will identify and briefly describe the most useful grain marketing alternatives available to grain producers. The actual application of these alternatives will be described in more detail later in this manual.

One method of categorizing grain marketing alternatives is according to the time you set or an estimate of the price you will receive for your grain. Since your grain can be stored and there is an active forward sales market, you can price your grain at many different times during the marketing season. This may extend over a 24-month period from the time the first futures contract is offered on the Chicago Board of Trade until storage space is needed two years later for the new crop. (See Figure 4-1.)

FEEDING GRAIN

You may choose to feed all or part of your grain to livestock. In this case your price would be established when you sell your livestock. The price you receive for your grain depends upon your feed conversion efficiency and the price of livestock at the time of sale. (See Figure 4-2.)

Figure 4-2 A swine operation that markets grain by feeding to livestock.

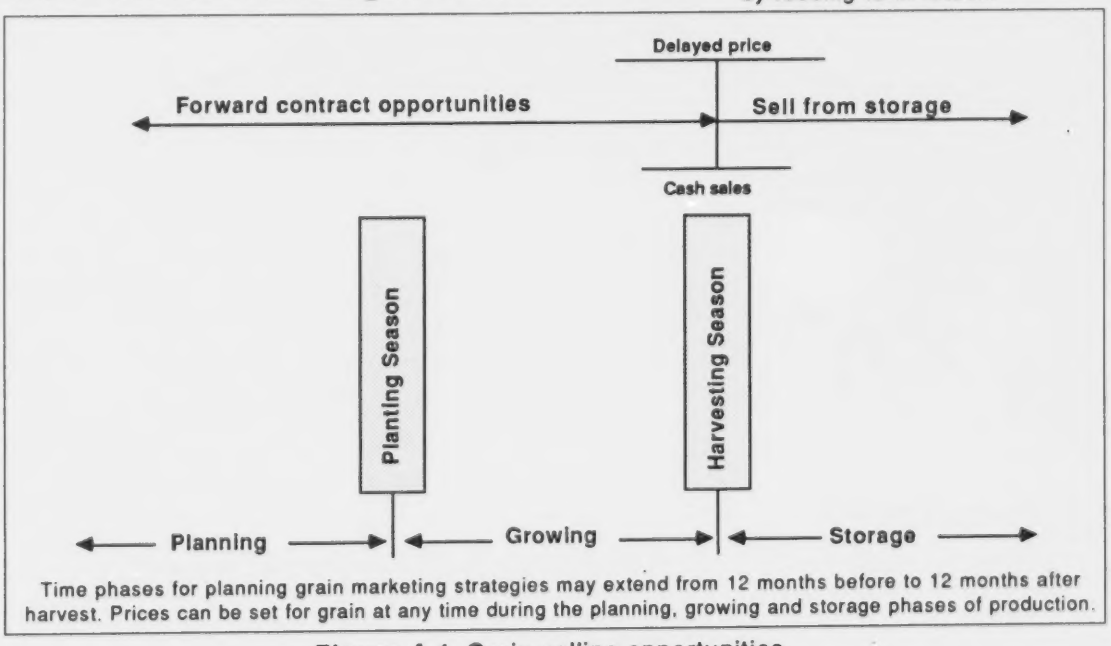


Figure 4-1 Grain selling opportunities

GRAIN MARKETING ALTERNATIVES

All marketing alternatives except feeding involve transferring ownership of your grain to a buyer at some time during the marketing season. These alternatives include pricing at the time you deliver your grain (cash sales), forward pricing during the planning and growing season, delayed pricing at time of harvest or during storage, and participating in government programs. You must estimate the change in both futures prices and the basis when selecting the best storage action for you and what marketing alternatives are available to you. The most commonly used marketing alternatives are illustrated in Figure 4-3.

Many of the grain marketing alternatives are complicated, especially if your knowledge of grain marketing procedures is limited. The case is similar with your crop cultural activities: if you knew little or nothing about recommended cultural practices, planting, cultivating and harvesting a crop would be even more complicated.

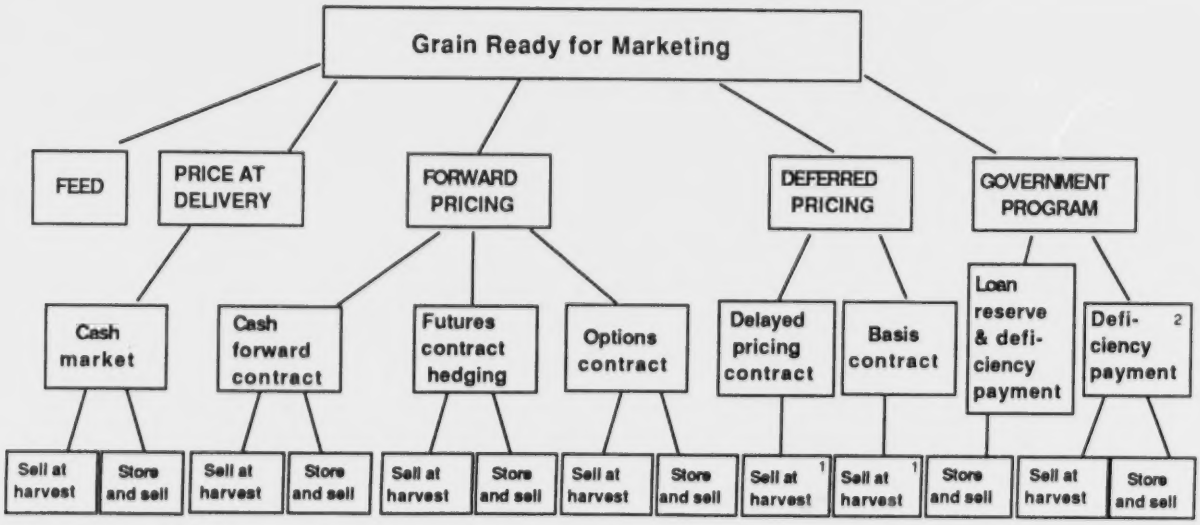
Use of Contracts in Transferring Title of Grain

We use contracts regularly in transacting business. Some are so routine in our daily lives that we seldom think of them as contracts. A contract is a legal document accepted and enforceable in our court system. This includes some verbal contracts.

All grain contracts contain five specific parts. All parts must be executed before the contract is complete. These parts can be met all at once or one at a time. The parts of a grain contract are:

- Title transfer or change of ownership and the time this takes place
- Place where the title transfer takes place (e.g. Prospect Farmers Exchange, Prospect, Ohio)
- A specified price. This may be in one lump sum or using a payment schedule that is agreed upon.
- Quality. Grade and condition of the grain identified
- Quantity or amount of grain being transferred (e.g. 10,000 bushels)

The simplest form of contract is the scale ticket which is made out as your grain is weighed. If it is a cash sale, this will be the only contract you will receive. It still contains all five parts of the contract. (See Chapter 2.) The check used to pay you for your grain also has all the parts of a contract.



[1]Although most Delayed Pricing and Basis contracts are signed at harvest, grain can be stored and contracts signed during the storage period.
[2]Grain is sold to a grain handler and the loan is repaid or is not accepted.

Figure 4-3 Marketing alternatives

When more complicated transactions for marketing your grain are used, your contract will specify the quantity, place of delivery, price, and time of delivery. The title changes in most cases when the contract is signed. It is very important for you to know exactly when the title to the grain is transferred.

Prior to signing your contract you should be familiar with certain policies and procedures practiced by the grain dealer such as:

- Sampling and grading procedures
- Moisture testing
- Methods of determining dockage
- Discount schedules
- Promptness of payment

Some grain dealers manipulate their prices by changing their discount schedule or relaxing their grain grading procedures. Thus, identical prices quoted at two different locations may still result in a price difference of several cents per bushel for the grain. A contract form recommended by the Ohio Grain and Feed Association is shown in Figure 4-4. Variations of this form are used in different elevators.

Price at Delivery

With this marketing alternative grain is sold for cash either during harvest or at a later time from on-farm or commercial storage. When your grain is weighed, you receive a copy of the scale ticket. Payment is made by check. These two documents will serve as your contracts.

You would usually consider this marketing alternative when your study of market conditions indicates to you that prices will decline. Futures prices are likely to go down while the basis weakens.

Cash grain and futures prices are quoted each business day in the *Wall Street Journal* and in many local newspapers. An example of newspaper grain quotations is given in Figure 4-5. Figure 4-6 is an example of a computer printout giving bids for wheat, corn and soybean cash and forward contracts. Subscribing to such a marketing news service is a *must*. (See the listing of market news sources, pages 8-11.) Price quotations are broadcast on many radio and television stations. You can also call your local or terminal elevator markets for price information.

CASH PRICES

Tuesday November 11, 1986.
(Quotations as of 4 p.m. Eastern time)
GRAINS AND FEEDS

	Tues	Mon	Yr. Ago
Alfalfa Pellets, dehy, Neb., ton	75.00	75.00	68.50
Barley, top-quality Mpls., bu	1.95-2.05	1.95-2.05	2.27½
Bran, (Wheat middling) KC ton ...	57.00	59.00	74.50
Brewer's Grains, Milw. ton	100.00	100.00	70.00
Corn, No. 2 yel. Cent-Ill. bu	bp1.51	1.52	2.31½
Corn Gluten Feed, Midwest, ton ..	98.-120.	98.-120.	85.00
Cottnsd Meal, Clksdle,Miss. ton ..	155.-62.5	155.-160.	133.75
Hominy Feed, Ill., ton	50.00	50.00	73.00
Linseed Meal, Mpls., ton	110.00	110.00	98.00
Meat-Bonemeal 50%-pro, Ill. ton .	185.00	185.00	175.00
Oats, No. 2 milling, Mpls., bu	n1.65-.80	1.65-.80	1.31
Rice, No. 2 milled fob Ark. cwt	9.75-14.0	9.75-14.0	17.25
Rye, No. 2 Mpls., bu	n1.65-.75	1.65-.75	2.50
Sorghum, (Milo) No. 2 Gulf cwt ...	3.20	3.41	4.32
Soybean Meal, Decatur, Ill. ton ...	152.5-54.5	153.-154.	146.50
Soybeans, No. 1 yel Cent.-Ill. bu ...	bp4.88	4.86½	5.20
Sunflwr Sd No. 1 Duluth/Supr cwt	7.20	z	9.00
Wheat, Spring 14%-pro Mpls. bu ..	r3.09¾	3.11	4.14¾
Wheat, amber durum, Mpls. bu ...	n3.20-.65	3.00-3.65	4.06
Wheat, No. 2 sft red, St.Lou. bu	h2.89½	2.94	3.37½
Wheat, No. 2 hard KC. bu ...	2.60	2.65	3.39

OHIO GRAIN

COLUMBUS (AP) — Ohio cash grain prices Wednesday:

	Wheat	Corn	Oats	Beans
NE Ohio	2.52	1.28	1.55	4.68
NW Ohio	2.75	1.33	1.42	4.78
Central	2.80	1.38	1.62	4.74
W Central	2.74	1.40	1.55	4.81
SW Ohio	2.71	1.38	NA	4.78
Trends	L	L	U	U

Trends: SL-Sharply Lower, L-Lower, U-Unchanged, H-Higher, SH-Sharply Higher.

Figure 4-5 Examples of cash grain quotations from two newspapers: the *Wall Street Journal* (above) and the *Columbus Dispatch* (below)

Using Basis to Evaluate Cash Price Bid

On the day you receive from your elevator a cash bid on your grain, compare your records of basis in previous years (historic basis) with the current basis on that day. You should be able to determine whether or not you have received a good bid.

For example, you received the following bid for your corn on December 1.

Cash bid - local elevator	$1.85
December futures price	- 2.45
Local basis	- $0.60
Your historic basis	- 0.40
Difference	$0.20

Had the normal basis been in effect, the price bid for your grain would have been:

December futures price	$2.45
Less historic basis	- 0.40
Cash price	$2.05

The expected price would have been $2.05 which is 20 cents over the elevator's bid.

(continued on page 106)

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PURCHASE CONFIRMATION AND CONTRACT

CONTRACT NO 14501

BOUGHT FROM:

_____

_____

_____

DATE: _____

NET BUSHELS	COMMODITY	PRICE	SHIPPING PERIOD	PLACE OF DELIVERY	CBT OPTION

This contract was made By Phone / In Person (strike thru one) at _____ (time) A.M. / P.M. at _____ (place) elevator office,

by _____ (Seller or Representative) and _____ (Buyer's Representative)

The statements above and below are understood to be an accurate statement of the terms and conditions of the agreement between the parties hereto. Failure to advise us immediately of any discrepancies, objections to, or disagreement with such terms and conditions shall be construed as an acceptance of this contract.

1. — Grade premiums and discounts at time of delivery.
2. — Buyer's weights and grades to apply.
3. — Only weight slips marked "CONTRACT" will be applied.
4. — Contract Bushels is to be an exact amount.
5. — Overfill Bushels will be priced at the buyer's market price at time of delivery.
6. — The MINIMUM damage chargeable to the seller, in the case of failure to fulfill this contract, would be the difference between the contract price and the replacement cost at the time of cancellation.
7. — Seller warrants that the grain to be delivered hereunder will be delivered free and clear of any and all liens, and will meet the Federal Food, Drug and Cosmetic Act requirements.
8. — Every effort will be made by buyers to accept the grain covered by this contract as it is delivered. However, if this is impossible, due to conditions beyond buyer's control, it does not cancel seller's obligation.
9. — Any extension of the delivery time is to be at the buyer's option.
10. — It is agreed that this contract shall be binding on the heirs, executors, personal representatives, and assigns of the parties hereto.

WE CONFIRM PURCHASE FROM YOU AS NOTED ABOVE: _____ (firm name)

Per _____

Seller should retain this copy

Figure 4-4 Sample contract form.
Provided by the Ohio Grain and Feed Association, Worthington, Ohio.

COUNTRYMARK TERM.ELEVATOR BIDS FOR CASH AND FORWARD CONTRACTS.
UPDATED AT APPROXIMATELY 4:00 P.M. MONDAY THROUGH FRIDAY
COUNTRYMARK,INC. IS SOLELY RESPONSIBLE FOR CONTENT OF THIS
REQUEST NUMBER 472. ALL BIDS ARE SUBJECT TO CHANGE WITHOUT
NOTICE.
BIDS MAY BE CORRECT, EVEN IF THE DATE ON THEM IS NOT.

COUNTRYMARK CASH GRAIN 3-10-87

WHEAT * * * *	ALGER	COLMBUS	FOSTRIA	GRAFTON	KENTON * * * *
XDP K	NA	NA	NA	NA	NA
FH/M**K	NA	NA	NA	NA	NA
MAR *K	297.25	298.25	293.25	296.25	296.25
APR* K	298.25	301.25	294.25	296.25	297.25
J/A N	249.50	252.50	250.50	249.50	249.50
DEC Z	247.50	253.50	250.50	247.50	247.50

**MIN 58#
*MIN 54#

CORN * * * *	ALGER	COLMBUS	FOSTRIA	GRAFTON	KENTON * * * *
FH/M K	144.00	146.00	143.00	146.00	144.00
LH/M K	144.00	146.00	143.00	146.00	145.00
FH/A K	145.00	148.00	144.00	146.00	146.00
LH/A K	146.00	149.00	144.00	147.00	146.00
MAY K	147.00	150.00	145.00	148.00	147.00
JUN N	147.50	151.50	146.50	149.50	147.50
JLY N	148.50	153.50	148.50	150.50	148.50
AUG U	151.50	156.50	151.50	153.50	151.50
FH/S U	NA	NA	NA	NA	NA
LH/S Z	NA	NA	NA	NA	NA
O-N Z	155.50	136.50	152.50	154.30	155.50
DEC H8	NA	NA	NA	NA	NA
JAN H8					

BEANS * * * *	ALGER	COLMBUS	FOSTRIA	GRAFTON	KENTON * * * *
FH/M K	477.25	482.25	484.25	479.25	478.25
LH/M K	478.25	483.25	484.25	479.25	478.25
FH/A K	480.25	483.25	485.25	481.25	480.25
LH/A K	481.25	484.25	485.25	479.25	481.25
MAY K	481.25	484.25	485.25	480.25	481.25
JUN N	475.25	481.25	480.25	475.25	475.25
JLY N	477.25	481.25	480.25	477.25	477.25
AUG Q	NA	NA	NA	NA	NA
FH/S U	NA	NA	NA	NA	NA
LHSONX	453.00	456.00	451.00	455.00	454.00
DEC F8	NA	NA	NA	NA	NA
	NA	NA	NA	NA	NA
JAN F8	461.75	464.75	459.75	461.75	461.75

Figure 4-6 Computer printout
From Ohio Farm Bureau ACRES Electronic Market News Service

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There are several possible reasons why the elevator's bid is lower than you expected, resulting in an unusually weak (wide) basis. Examples of some of these reasons are:

1. There has been an unusually large crop so that corn is being sold at a greater than normal discount relative to the futures market.

2. Your elevator may not have bids for corn from its usual customers. If the elevator has to sell your corn in more distant markets, transportation costs will increase.

3. Competition for grain may be low and your elevator is trying to buy corn at the lowest possible price.

You may want to shop around for another buyer that will offer you more for your corn. The location of the other market is an important factor, however. If the market is a greater distance from your farm, your transportation costs will increase.

You may decide to hold your grain for later sale in hopes the basis will strengthen. If you do this, you run the risk that the price will decline still further.

Price and Deliver at Harvest

The title transfers when grain crosses the scales.

Advantages

1. It is easy and well understood.

2. No storage is required.

3. Money is available at harvest.

4. Risk is limited to growing season.

5. Price is immediately known.

6. Wet corn is shrunk only to 15.5 percent, while some markets shrink to 14 percent for storage.

Disadvantages

1. There is no price flexibility.

2. Harvest prices are usually lower than at other times of the year.

3. The basis is usually weak (wide) at harvest.

4. Delivery is often delayed due to congestion at the elevator.

5. This way is too easy for the producer and may keep him or her from exploring better marketing alternatives.

Store, Price and Deliver Later

The title transfers when grain crosses the scales.

Hold Grain in On-Farm Storage

Advantages

1. There is price flexibility. Pricing can be done at various times after harvest during the market year.

2. There is flexibility and control over where and when grain is delivered.

3. The producer can realize gain from price appreciation and basis strengthening.

4. On-farm storage is used.

Disadvantages

1. Price speculation is continued after harvest.

2. Risk is taken in maintaining grain quality.

3. Seasonal workload may reduce timeliness of meeting marketing opportunities.

4. Storage costs may exceed selling price improvement.

5. Money is not available until grain is sold.

6. Producer may feel compelled to use storage even in years it should not be used.

Store at Commercial Elevator, Receive Warehouse Receipt, and Price and Sell Later

The title transfers when warehouse receipt is returned to elevator and grain is sold.

Advantages

1. There is price flexibility.
2. No management is required to maintain grain quality.
3. Producer can sell simply by delivering warehouse receipt.
4. Warehouse receipt can serve as collateral for obtaining loan.
5. Producer can realize gain from price appreciation.

Disadvantages

1. Producer is still speculating on price in the cash market.
2. Storage and holding costs may be more than improvement in selling price.
3. Money is not available at harvest unless commercial loan is obtained.
4. Control over where to sell is reduced.
5. Producer must pay commercial storage rates.
6. There may be a harvest bottleneck at the elevator.

FORWARD PRICING

Cash Forward Contract, Forward Price and Delivery Later

The grain producer can enter into a contract to sell grain at some future time under specified conditions. This contract offers the opportunity to lock in a price for a specified quantity of grain that you expect to grow, have growing, or already have in storage. Title to the quantity of grain put under contract transfers at the time the contract is signed, not when the grain is delivered. This is true even though you might continue to keep grain in on-farm storage and bear risk of maintaining quality.

Steps in Forward Contracting Grain

1. When determining the advisability of forward contracting your grain, contact your grain buyer either at your local or terminal elevator. It may be best to make more than one contact since elevator bids may differ, depending on how much they want your grain. This contact may be made any time during the production or storage phase of the marketing year.

2. Determine the condition of the dealer's forward pricing contract. The contract conditions will vary from one grain buyer to another. (See Figure 4-7 for an example of one grain buyer's contract.) Study the terms of the contract carefully to be sure you can or should comply with them if you decide to forward contract your grain. Are there provisions for flexibility in delivering and receiving the grain? How are the parties agreeing to settle differences that might arise? What are the provisions for quantity, time of delivery, grading procedures, and discount procedures to be followed for moisture and quality factors?

3. Determine the buyer's bid for your grain under the terms of the contract. Usually the dealer will base the bid on the futures market. The dealers will rely, in part, on records showing their historical basis in making the bid.

4. Study market news and outlook reports in deciding whether or not this is a good bid for you. Compare the bid with your records of the historic basis. Does the bid meet your pricing objectives? You would usually consider an alternative if you believe the futures price will decline and the basis weaken.

   Situation:

   On August 10:

Closing price on December corn futures	$1.90

The Ohio Grain Company

Mechanicsburg, Ohio Marysville, Ohio Kileville, Ohio

GRAIN PURCHASE CONFIRMATION No. 0496

Date .....

The Ohio Grain Company, hereinafter called Buyer, does hereby confirm purchase

from ..... of ....., Ohio,
hereinafter called the Seller, of grain listed below:

Net Bushels	Commodity	Price / bu.	Delivery Period	Place of Delivery	Grade *

1. * Grain delivered grading lower than this grade will be discounted at prevailing discount schedules.

2. Seller agrees that price shall be subject to the Buyer's discounts at the time of delivery and if the quality factors of the grain delivered fall below the prevailing discount schedules, Buyer may reject it.

3. Basis (unpriced) contracts will be priced only by the Seller instructing the Buyer to execute a trade on the Chicago Board of Trade for the purpose of establishing the cash price of the contract.

4. Buyer agrees to accept delivery of grain during normal business hours at the elevator on or before the stated delivery date, subject however to the right of rejection granted in Item 2 above. If grain is not delivered within the time specified, this contract will be considered open until Buyer notifies Seller in writing that the same is cancelled. Such notice shall be sent by ordinary mail or delivered in person to the Seller and the date of mailing or personal delivery shall be the date of default for the purpose of calculating Buyer's damages for Seller's failure to deliver as promised in this contract. The Seller is obligated to the Buyer to the extent of these damages and this contract remains open and valid until such obligations are fulfilled.

5. Every effort will be made by Buyer to accept the grain covered by this contract as it is delivered. However, if this is impossible due to conditions beyond Buyer's control, it does not cancel Seller's obligation.

Payment for grain delivered under this contract is due: (Check one)

( ) On ..... 19 .....

( ) At final delivery under the contract.

THE OHIO GRAIN COMPANY

By: .....

Seller: .....

Please sign and return attached copy promptly to The Ohio Grain Company. Keep original for your records.

Regardless of whether the enclosed confirmation is signed and returned, it is understood that by the retention of this confirmation by the Seller, without notifying Buyer of error therein within ten days from the time of the receipt of this confirmation by the Seller, is an acknowledgement and acceptance of the contract exactly as stated above.

Figure 4-7 Example of a grain sales contract to be used when forward contracting grain

Grain buyer's bid on corn to be delivered on December 10	$1.55

What was the historic basis the buyer was using in setting the bid price?

Cash price bid	$1.55
December futures price	1.90
Historic basis used by grain buyer	- $0.35

Determine whether or not you think this is a good bid by referring to your records of the historic basis.

If your records show a historic basis of -$0.40, the expected bid would be $1.50 ($1.90 - $0.40 = $1.50). $1.55 is probably a good offer.

If your records show a historic basis of -$0.30, the expected bid would be $1.60 ($1.90 - $0.30 = $1.60). The dealer has made a bad offer. It is time to look for a new dealer who will bid more for your grain.

In this pricing process dealers will protect themselves from declining prices by hedging in the futures market. Since this manual is dealing with grain marketing for producers, we will not go into the details of how grain buyers protect themselves from price changes.

Advantages of Forward Contracting

1. Sales are final; market fluctuation will not affect price.
2. It is easily understood and is the most popular forward-pricing alternative.
3. There is no deposit of money or margin calls (as in futures contract).
4. Buyer and seller can easily enter into a contract and it is legally binding on both.
5. Both basis and price risks are eliminated.
6. Producer can sell any amount desired. It does not have to be in 1000 or 5000 bushel units.
7. Lengthening of the market year is possible.

Disadvantages of Forward Contracting

1. Producer must deliver grain. If grain is not produced, the producer is still obliged to cover the contract.
2. If there is a benefit from basis gain, the appreciation in basis goes to the elevator.
3. Price is not flexible. If the market conditions change, the producer cannot get out of the contract without a charge.

Futures Market Contract - Hedging

Hedging to protect yourself against unfavorable changes in grain prices requires a working knowledge of the futures market and an understanding of the basis. See Chapter 3 for a discussion of these topics.

Hedging operations are tied closely with expected sales in the cash market that will take place at a later time. You make a temporary transaction in the futures market by selling futures contracts which will be cancelled out at a later date when you sell your cash grain.

Theory of Hedging

The reason hedging works is that both cash and futures prices are affected by the same supply and demand factors. Thus, as one moves up, the other also tends to move up; when one moves down, the other tends to move down. This is not a penny-for-penny relationship, but only an approximate association. Unusual local supply and demand situations can also upset this relationship. In addition, there is a tendency for the futures price and the cash price to come together as the futures delivery month approaches. These tendencies are described in Chapter 3. The price relationships are illustrated in Figure 4-8. This nearly-parallel movement of cash and futures markets means that any gains or losses in the futures market are nearly opposite and tend to offset any similar gains or losses in the cash market. This makes hedging possible, since you take opposite positions in the two markets.

For example, you are *long in the cash market* when you have a crop either growing in the field or in storage. You stand to make money if the price goes up and to lose money if it goes down.

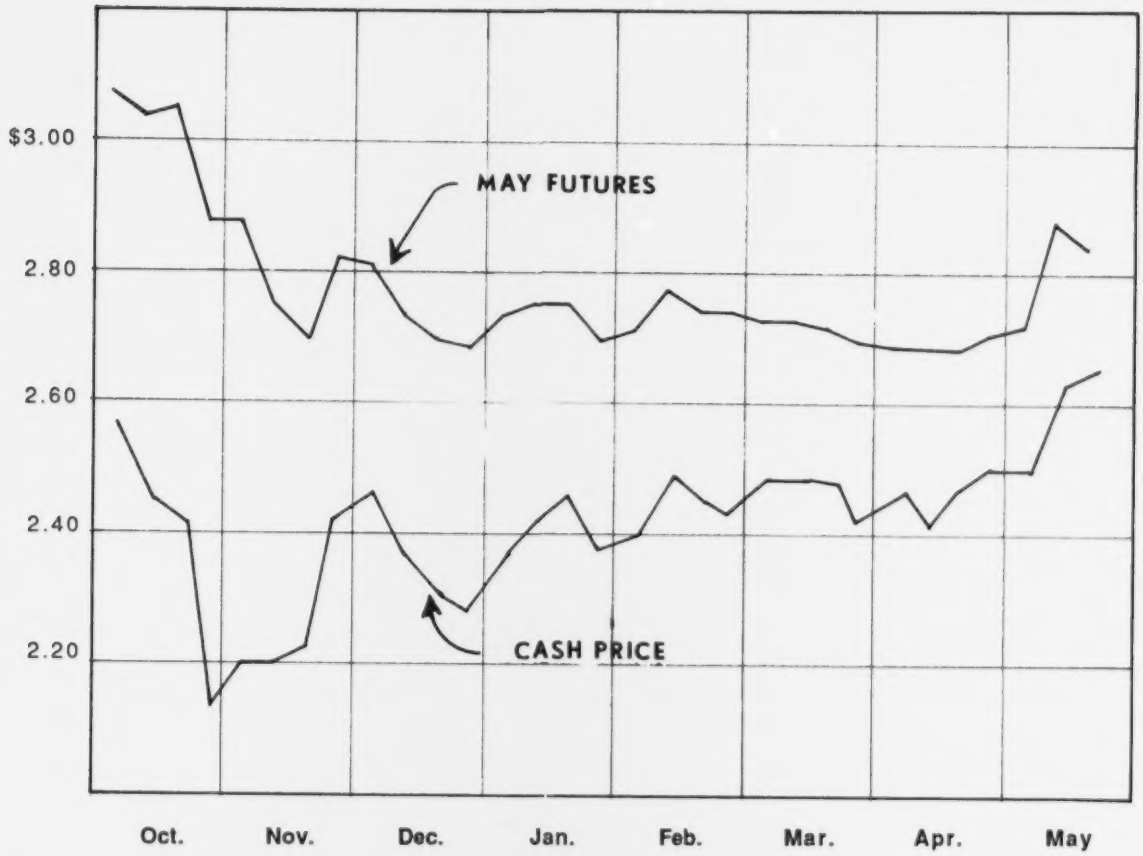


Figure 4-8 Movements of the cash corn price at Fremont, Ohio and the Chicago Board of Trade May futures price. Note that the up and down movements of the two prices tend to follow one another. They also tend to come together as the May contract delivery month approaches.

To protect yourself against what you fear to be a decline in price during the coming months, you take *a short position in the futures market.* You do this by selling a futures contract for making delivery during the futures contract month. Thus, you have offset your long cash grain position by taking an equivalent opposite position in the futures market.

You tend to make money if the futures price goes down since you will be buying back your hedging contracts at a lower price. However, you will lose if the futures market goes up and you have to buy back your hedging contracts at a higher price.

(See Chapter 3 for buying and selling futures contracts.)

Reasons for Hedging

There are two main reasons for a grain farmer to consider hedging:

1. To establish the price of a crop before harvest

2. To establish the price of grain in storage for later delivery

A livestock farmer may also hedge for protection from rising feed costs. This aspect of hedging is not covered in this grain marketing manual, however.

Procedures for Hedging

When hedging you will be selling and buying futures contracts. You can do this by working with your broker as explained in Chapter 3.

You will also refer to your price records to determine the local basis. A comparison of your current local basis and your historic local basis will help you in determining whether or not it will pay you to hedge or to use another marketing alternative.

Preliminary Steps before Hedging

There are seven steps to take in determining the advisability of hedging.

1. Localize the futures price by adjusting it back to the cash equivalent in your local market. To do this, subtract four main items from the futures price.

   - The basis
   - Any expected quality (grade) difference between your grain and that specified by the futures contract
   - Brokerage fee or commission
   - Interest on the margin money required

2. Estimate the probable size of your later cash transaction. Your volume of commitments in the futures market should be as close as possible to the volume of grain you will be selling later. In the case of grain you are raising, be especially careful not to overcommit yourself. You may have an unexpected drought, insect attack, or disease that reduces your expected yield. For example, if you are raising 100 acres of corn and expect a yield of 150 bushels per acre, you could have a total of 15,000 bushels to sell. This could be hedged by buying three 5,000-bushel futures contracts. However, this would not be safe since one or more of the above mentioned adverse growing conditions might reduce your yield to about 120 bushels per acre for a total of 12,000 bushels. Only two futures contracts would be required to hedge this amount. To be safe, you probably should not hedge more than about 80 percent of your expected crop. Any amount you hedge over the actual amount of cash grain you have to sell is pure speculation. Few farmers are in a position to take this added risk.

3. Estimate your net returns with a hedge and see if it will provide a satisfactory profit.

4. Study market and outlook reports and predict which direction you think the price is likely to move between now and the time you expect to complete your hedge.

5. Estimate your returns without hedging.

6. Compare your returns with and without hedging and consider your ability to absorb risk if you don't hedge.

7. Select the most favorable action to take.

Establishing the Price of a Crop before Harvest

The futures market makes it possible for you to establish a price for your grain either before planting or at some time during the growing season. If the price declines, you will be sure of a favorable price for your grain. However, if the price increases, you will still receive a favorable price for your grain, though it will be less than you would have received had you not hedged. Thus you face the risk of declining prices if you do not hedge and the risk of receiving a lower than market price for your grain if you do hedge and the price increases. Records show that over a period of time and on the average, grain farmers who hedge tend to receive higher prices for their grain than those who do not hedge.

Steps in Hedging before Harvest

1. Sell futures contracts to cover your expected production at some time before planting or during the growing season.

2. Sell your cash grain at or soon after harvest.

3. Buy futures contracts to cancel out your hedging position. This should be done as close as possible to the time you sell cash grain. You are speculating if you keep your futures contracts beyond the time you have cash grain to offset them. You could soon lose more than you gained by hedging if futures prices become unfavorable.

Before-Harvest Hedging Examples

Following are some examples of what might happen in different hedging situations.

Situation

You are raising 600 acres of soybeans and expect a yield of at least 36 bushels per acre. This would give you 21,600 bushels of cash soybeans to sell. This could be hedged by buying four 5,000-bushel futures contracts. However, to protect yourself from an unexpected decline in yield you choose to hedge not more than 80 percent of this amount which is 17,280 bushels (0.80 X 21,600 = 17,280 bushels). This amount can be hedged by buying three 5,000-bushel futures contracts. The remainder is 2,280 bushels not hedged (17,280 - 15,000 = 2,280 bu).

On May 20

You are growing a crop of soybeans that you expect will yield over 21,000 bushels of soybeans.

Choose to hedge three contracts - 15,000 bu

Cash price	$5.75
November futures price	6.15
Basis	- $0.40

On September 20

Cash price	$5.25
Futures price	5.65
Historic basis	- $0.40

On May 20 you localize the futures price to obtain your projected net cash price when you sell your soybeans.

May 20 futures price	$6.15
Historic basis	- .40
Gross price	$5.75
Interest and brokerage fees	- .03
Net price expected	$5.72

Example 1

In this example the cash price and the futures price decline while the basis remains the same.

The hedge would look like the following:

Cash	Futures	Basis
May 20		
Growing 15,000 bu soybeans	Sell 3 contracts Nov. soybeans	
Cash price $5.75	Futures price $6.15	- 0.40
Sept. 20		
Harvest and sell 15,000 bu soybeans	Buy 3 contracts Nov. soybeans	
Cash price $5.25	Futures price $5.65	+ 0.40
Loss - 0.50	Gain +0.50	0

Cash price	$5.25
Gain in futures	+ .50
Gross price	$5.75
Broker fee and interest	- .03
Net price	$5.72

Since this was a perfect hedge, your September 20 net price was the same as your May 20 expected price. Usually your basis will not remain exactly the same. Even with a slight variation you would still have been near enough to your expected price to have made the hedge successful.

Example 2

If on September 20 in our situation the basis strengthened to - $0.30, you would gain an additional 10 cents per bushel on the strengthening basis. This could result with any reasonable combination of cash and futures prices that equaled a basis of - $0.30 such as:

Cash price	$5.30
Futures price	5.60
Basis	- $0.30

In this example both the cash and futures prices declined. The hedge would look like this:

Cash	Futures	Basis
May 20		
Growing 15,000 bu soybeans	Sell 3 contracts Nov. soybeans	
Cash price $5.75	Futures price $6.15	- $0.40

(continued)

Cash	Futures	Basis
Sept. 20		
Harvest and sell 15,000 bu soybeans	Buy 3 contracts Nov. soybeans	
Cash price $5.30	Futures price $5.60	- $0.30
Loss - $0.45	Gain +$0.55	Gain +$0.10

Cash price	$5.30
Gain in futures	+ .55
Gross price	$5.85
Broker fee and interest	- .03
Net price	$5.82

As a result of this hedging situation, you gained an extra 10 cents per bushel over your net expected price of $5.72.

Example 3

If on September 20 in our situation the basis weakened to - $0.50, you would lose 10 cents per bushel on the weakening basis. Again, this would result with any reasonable combination of cash and futures prices that equals a basis of -$0.50 such as:

Cash price	$5.20
Futures price	5.70
Basis	- $0.50

Both the cash price and the futures price have declined. The hedge would look like this:

Cash	Futures	Basis
May 20		
Growing 15,000 bu soybeans	Sell 3 contracts Nov. soybeans	
Cash price $5.75	Futures price $6.15	- $0.40
September 20		
Harvest and sell 15,000 bu soybeans	Buy 3 contracts Nov. soybeans	
Cash price $5.20	Futures price $5.70	- $0.50
Loss - 0.55	Gain + 0.45	Loss - 0.10

Cash price	$5.20
Gain in futures	+ .45
Gross price	$5.65
Broker fee and interest	- .03
Net price	$5.62

As a result of this hedge you lost 10 cents per bushel as compared with your expected price of $5.72 per bushel. This was caused by the weakening basis.

Example 4

What would happen to your September 20 net price if the cash price increased by 15 cents per bushel to $5.90 and the basis weakened to - $0.60?

Cash price	$5.90
Futures price	6.50
Basis	- $0.60

In this example both the cash price and the futures price increased from May 20 to September 20. The hedge would look like this:

Cash	Futures	Basis
May 20		
Growing 15,000 bu soybeans	Sell 3 contracts Nov. soybeans	
Cash price $5.75	Futures price $6.15	- $0.40
September 20		
Harvest and sell 15,000 bu soybeans	Buy 3 contracts Nov. soybeans	
Cash price $5.90	Futures price $6.50	- $0.60
Gain + $0.15	Loss - $0.35	Loss -$0.20

Cash price	$5.90
Loss in futures	- .35
Gross price	$5.55
Broker fee and interest	- .03
Net price	$5.52

You were not able to realize the increase in the cash grain price because you lost in the futures market when you closed out your futures position. Locking in a price by hedging will usually keep you from taking advantage of cash price

increases. In this example if the basis had weakened less, the net price would have been reduced less.

Establishing the Price of Grain in Storage for Later Delivery

The futures market makes it possible for you to establish a price for your grain that is stored for sale at a later time. The procedure is very similar to pre-harvest hedging except for the dates of transactions. One additional cost that must be considered is that of storing the grain until it is sold. Your expected net price received as a result of hedging must be enough over the cash price received to cover this storage cost.

Earning Storage Payment

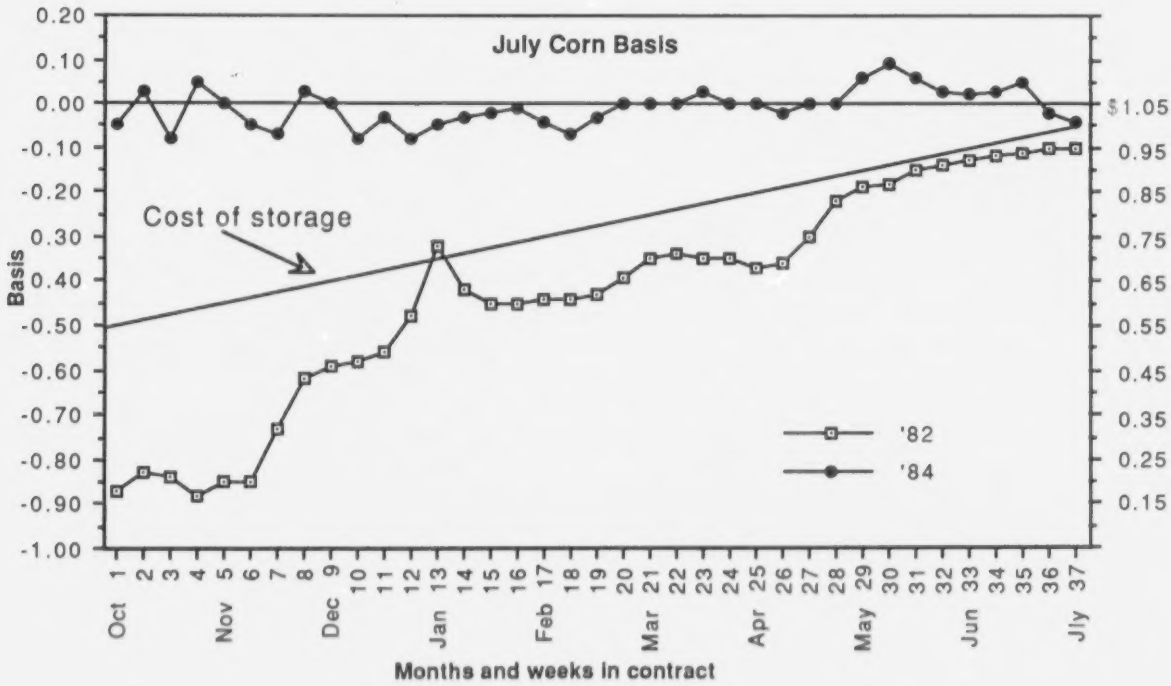
When the basis is weak at harvest, the producer is in a good position to earn payment for storage of the grain. If the basis follows the usual pattern, it will strengthen as the marketing season advances. This is illustrated in Figure 4-9. The July 1982 corn basis is shown along with the cost of storage. Note that the storage cost increases over time. When the basis moves up to or is less than the remaining cost of storage, the hedge can be lifted. This graph shows that the storage costs were covered briefly during the 13th week of the hedge due to the basis strengthening. Again during late May and early June the basis strengthened so that storage costs were nearly covered.

In this example storage costs would have been paid by the strengthening of the basis. This is not possible if the basis does not strengthen enough during the marketing period to cover storage costs. The July 1984 corn basis illustrates this lack of strength.

STEPS IN HEDGING STORED GRAIN

1. Store your harvested grain either on your farm or in commercial storage.

2. Sell futures contracts to cover the amount of stored grain. Be careful not to buy more futures contracts than you will have grain in storage at delivery time. Remember that your grain will shrink in storage. Also, the



When a weak basis moves up to or is less than the remaining cost of storage, lift hedge.
A basis that does not strengthen will not pay storage.

Figure 4-9 Basis improvement and cost of storage in a southwestern Ohio elevator

grade of your grain may be lower than that specified in the futures contract. This means you would need to sell extra grain to make up the difference.

3. Sell your stored cash grain at a future date.

4. Buy futures contracts to cancel out your hedging position. As with the pre-harvest hedge this should be accomplished as close as possible to the time you sell your cash grain. Otherwise you will be speculating in the futures market; an unfavorable turn in prices could cause you a quick loss of money.

Storage Hedging Example

Following are some examples of what could happen in different hedging situations. Except for considering storage costs and different transaction dates, these hedging examples are very similar to those given for pre-harvest hedging; (thus, fewer examples are presented here).

Situation

By November 1 you have harvested and stored 22,000 bushels of corn. You want to see if the expected net price you might receive by hedging would be enough to pay November 1 to July 1 storage costs and return a reasonable profit. You believe it would be safe to buy four 5,000-bushel futures contracts (20,000 bushels) and that you will have enough corn to meet your delivery date requirements.

November 1
22,000 bu corn harvested and stored on farm. Choice made to hedge by buying 4 futures contracts (20,000 bu).

Cash price	$2.76
July futures price	3.04
Basis	- $0.28
Historic basis on July 1	- $0.08

July 1

Cash price	$2.50
July futures price	2.56
Basis	- $0.06

On November 1 you localize the futures price to obtain your projected net cash price when you sell your corn.

July corn futures Nov. 1	$3.04
Historic basis July 1	- 0.08
Expected gross price	$2.96
Broker fee and interest	- 0.03
Expected net price	$2.93

Example 1

The cash price and the futures price declined while the basis strengthened (narrowed) from $0.28 on November 1 to - $0.06 on July 1. The hedge would look like this:

Cash	Futures	Basis
November 1		
Store 22,000 bu cash corn	Sell 4 contracts July corn	
Price $2.76	Price $3.04	- $0.28
July 1		
Sell 20,000 bu cash corn	Buy 4 contracts July corn	
Price $2.50	Price $2.56	- $0.06
Loss - $0.26	Gain + $0.48	Gain +$0.22

Cash price	$2.50
Gain in futures	+ .48
Gross price	$2.98
Broker fee and interest	- .03
Net price	$2.95

$2.95 is 2 cents over the expected net price. This is because the $0.06 basis on July 1 is 2 cents stronger than the historic basis of -$0.08.

In this situation, hedging would gain $0.45 over the cash price of $2.50. Do you think you would store your corn from November 1 to July 1 for this amount?

Example 2

The cash price and the futures price increased and the basis strengthened. The hedge would look like the following:

Cash	Futures	Basis
November 1		
Store 22,000 bu cash corn	Sell 4 contracts July corn	
Price $2.76	Price $3.04	- $0.28
July 1		
Sell 20,000 bu cash corn	Buy 4 contracts July corn	
Price $3.00	Price $3.10	- $0.10
Gain + $0.24	Loss - $0.06	Gain +$0.18

Cash price	$3.00
Loss in futures	- 0.06
Gross price	$2.94
Broker fee and interest	- 0.03
Net price	$2.91

In this example the net price of $2.91 is only 2 cents below your expected price of $2.93. This makes it a good price even though it is below the July 1 cash price of $3.00. Also, you were protected from a decline in the cash price.

Example 2 shows that when you set a forward price, you are speculating to some extent. No one can exactly predict price level and basis movements. However, in this example the cost of storage was not recovered by hedging.

A summary of the six hedging examples is given below. It reveals that four of the examples resulted in net prices significantly over the available cash price (from +$0.45 to +$0.52). One resulted in a net price of $0.38 below the cash price (-$0.38), while another was only $0.09 below the cash price (-$0.09). A conclusion that could be drawn from these six examples is that hedging paid far more than it lost. Another conclusion is that hedging not only insures against unfavorable price movements but also prevents taking advantage of upward price movements.

The more familiar you become with basis movements the better able you will be to choose when hedging or another marketing alternative will be best for your situation.

Hedging Advantages

1. Hedging takes advantage of basis gains and reduces price-level risk. A producer can more nearly lock in a known net price for grain.

2. Hedging is flexible. The producer can sell futures and buy them back if market conditions change. If this occurs, the producer is removed from the hedged position and returns to the role of a speculator.

3. The futures market permits lengthening of the marketing year. Producers have up to 24 months to market the crop starting before planting and on through the entire marketing year. (During this period a specific futures contract is being traded on the Chicago Board of Trade.)

4. Basis is more predictable than the cash price level.

5. A weak basis at time of hedging may strengthen enough to pay for the cost of storing the grain.

Summary of the Six Examples

Example	Cash price at sale of grain	Net price due to hedging	Over or under cash price	Over or under expected price
Before Harvest				
1	$5.25	$5.72	+0.47	0.00
2	5.30	5.82	+0.52	+0.10
3	5.20	5.62	+0.42	-0.10
4	5.90	5.52	-0.38	-0.20
Stored Grain				
1	$2.50	$2.95	+0.45	+0.02
2	3.00	2.91	-0.09	-0.02

Hedging Disadvantages

1. Producer must have or borrow margin money to open an account and initiate a hedging position.
2. Producer must conduct transaction through a broker and pay broker fees.
3. Producer is subject to margin calls.
4. Producer accepts basis risks.
5. Producer must sell in 1,000 or 5,000 bushel units.
6. Producer must either deliver grain at maturity of contract or buy back contract before it goes off the board.
7. Producer forgoes the opportunity to market grain at higher prices if the market strengthens later on.
8. Some hedgers are tempted to speculate.

Commodity Option Contract

A commodity option contract (dealing with grain in our examples) can be defined in very simple terms as buying insurance against an unfavorable change in price. You can buy fire insurance on your grain storage buildings that can be collected if they burn down. You can also buy the right to sell your grain at a specific price if prices go below this level. In each case you would pay a premium for the protection. Another market exists that would interest the livestock feeder. The feeder can purchase, at a premium, the right to buy grain at a specific price if the price goes above this level. With insurance, you do not collect unless your building burns. With options, you do not exercise (take advantage of your right) unless the grain seller's price goes below the option price or the grain buyer's price goes above the option price. You merely let them expire. In this manual we will deal only with the grain farmer who has grain to sell. (See Figure 4-10.) A knowledge of how the futures market functions and how to use the basis is required when dealing with options. (This was explained in Chapter 3.)

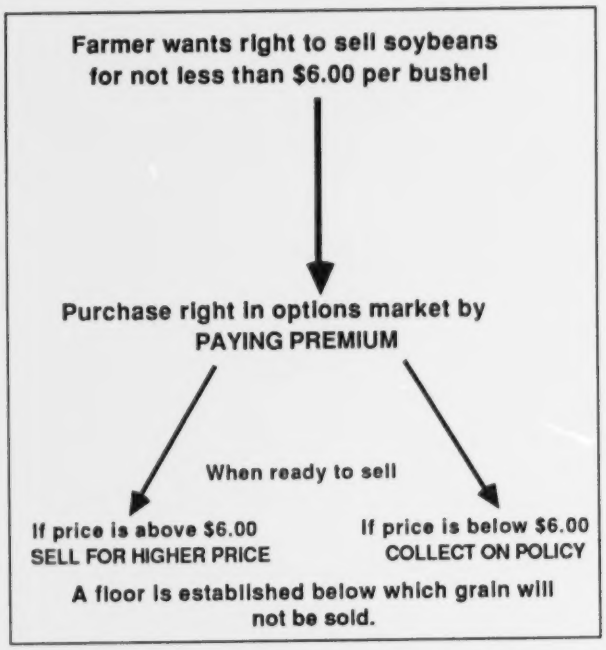


Figure 4-10 Example of a commodity option contract. *Source:* Coooperative Extension Service, The Ohio State University

Buyers and Sellers of Options

As with any market there must be buyers and sellers. The buyer of the option is the option holder. In this case the buyer would be the grain farmer seeking price insurance. The seller of the option grants or writes the rights contained in it. This may be a speculator. Options are bought and sold only in a grain exchange. To purchase an option you would have to work with your broker. This procedure was described in Chapter 3 in the section dealing with the futures market.

Underlying Commodity

The underlying commodity for the option contract is the futures contract rather than the grain itself. For example your option may be a July corn futures. Thus your contract will be in 5,000 bushel units of the futures market for the various futures contract months for which options are available.

Two Types of Commodity Options

There are two types of commodity options: the call option and the put option.

The **call option** gives the buyer or holder (livestock feeder) the right, but not the obligation, to go long in the futures market by buying a futures contract at a specified price. This means the option writer or seller must take an opposite short position in the futures market. (The call option will not be discussed further in this grain marketing manual.)

The **put option** gives the buyer or holder (grain farmer) the right, but not the obligation, to go short in the futures market by selling a futures contract at a specified price. This means the option writer or seller must take an opposite long position in the futures market.

The call and put options are two distinct contracts. One can not be used to offset the other as with long and short futures contracts (which are explained in Chapter 3).

Strike Price

The price specified in the option contract is known as the **strike price.** When you buy a put option this is the futures price at which you, as the option holder, have the right, but not the obligation, to go short in the futures market by selling a futures grain contract. The seller of the option (option writer) takes a futures position opposite to that of you, the option buyer.

Strike prices are predetermined by the grain exchange and fluctuate from day to day. The Wall Street Journal publishes futures options daily. Most newspapers do not have this service. However, you can obtain this information from broadcasts, elevators and brokers. Strike prices are quoted at regular intervals, so you can choose the one that best suits your needs. Examples of strike prices for soybeans on a given day (Wednesday, December 3, 1986) are as follows:

Soybeans (CBT) 5,000 bu
Cents per bu

450
475
500
525
550
575

Premiums

The price you pay for the privilege, but not the obligation, to go short in the futures market by selling a futures contract at a specified price is called the **premium**. This is the amount - the *total amount* - you pay when you purchase the put option. There will be no additional margin calls as with hedging. The premiums are negotiated in the trading pits of the grain exchange. Thus the price depends on how much you are willing to pay for the right to sell your commodity for not less than the strike price you may choose (for example, your soybeans for not less than $5.25 per bushel). The premiums are also a part of the futures options quotation in the grain market report. Here is an example (for December 3, 1986 - see Figure 4-11):

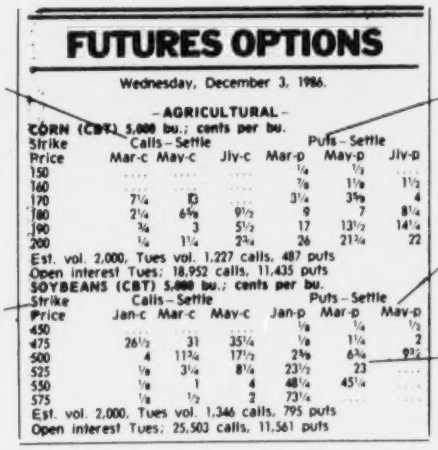
Soybeans (CBT) 5,000 bu
Cents per bu

Strike Price	Puts - Settle		
	Jan P	Mar P	May P
450	1/8	1/4	1/2
475	1/8	1 1/4	2
500	2 5/8	6 3/4	9 3/4
525	23 1/2	23	----
550	48 1/4	45 1/4	----
575	73 1/4	----	----

In this quotation, for 5,000 bushels, $5.25 March put option would cost 5,000 bu X $0.23/bu premium = $1,150.00 total premium cost. (Figure 4-11 also shows how to read *Wall Street Journal* options quotations.) Figure 4-12 is an example of the Ohio Farm Bureau ACRES Electronic Market News Service report for soybean put options for March 10, 1987.

Break-Even Point

When you buy a put option you pay a premium for the right to sell a futures contract at a specific price. To break even, the futures price must be enough less than your strike price to pay the premium. For example, on December 3, 1986 one of the strike prices was $5.25 March put option with a $0.23/bu premium. Thus, to break even, the March futures price would need to be $5.02 ($5.25 - $0.23 = $5.02). For buying put options, the break-even point is when the futures price equals the strike price minus the premium.



FUTURES OPTIONS

Wednesday, December 3, 1986.

– AGRICULTURAL –

CORN (CBT) 5,000 bu.; cents per bu.

Strike Price	Calls – Settle Mar-c	May-c	Jly-c	Puts – Settle Mar-p	May-p	Jly-p
150	....	....	....	¼	½	....
160	....	....	....	⅞	1⅛	1½
170	7¼	13	....	3¼	3⅝	4
180	2¼	6⅝	9½	9	7	8¼
190	¾	3	5½	17	13½	14¼
200	¼	1¼	2¾	26	21¾	22

Est. vol. 2,000, Tues vol. 1,227 calls, 487 puts
Open interest Tues: 18,952 calls, 11,435 puts

SOYBEANS (CBT) 5,000 bu.; cents per bu.

Strike Price	Calls – Settle Jan-c	Mar-c	May-c	Puts – Settle Jan-p	Mar-p	May-p
450	....	....	....	⅛	¼	½
475	26½	31	35¼	⅛	1¼	2
500	4	11¾	17½	2⅝	6¾	9½
525	⅛	3¼	8¼	23½	23	....
550	⅛	1	4	48¼	45¼	....
575	⅛	½	2	73¼	....	....

Est. vol. 2,000, Tues vol. 1,346 calls, 795 puts
Open interest Tues: 25,503 calls, 11,561 puts

1 **Call** option gives the right to purchase grain futures at the option strike price.

2 **Put** option gives the right to sell grain futures at the option strike price.

3 **Strike price** is the price at which the underlying futures contract may be purchased in case of a call, or sold in case of a put.

4 **Futures delivery month** is the delivery month of the grain futures contract which the option holder may purchase (call) or sell (put) at the strike price.

5 **Premium** is the price of the option at the close of trading on the previous day, quoted in cents per bushel.

Figure 4-11 Reading options quotations. *Source: The Wall Street Journal*

Terminating an Option

There are three ways you can terminate your option position. They are:

1. ***Exercising*** your option by taking a position in the futures market at the strike price,

2. ***Letting*** your options ***expire*** by going past the expiration date without taking action, or

3. ***Liquidating*** or closing out your option by selling it.

Exercise

Exercising your option is the action you as the holder take if you want to convert it to a futures market contract. After exercising a put option you would be *short* in the futures market. The futures price of your contract would be the same as your strike price. You will then be able to dispose of your futures contract as you see fit. However, you will be in the futures market and have to post margin money with your broker and pay commission fees. Before deciding to exercise your put option, you must consider these added expenses and compare them with other means of handling your option.

SOYBEANS 03/10/87 16:02

Puts	Open		High	Low		Closed	Chg
May450	0		0	0	S	2	+ 00
May475	12		14	12	S	13	+ 03
May500	110	B	134	110	S	134	+ 22
Jul450	13		13	13	S	13	+ 01
Jul475	46	B	52	44	S	52	+ 07
Jul500	166	B	184	166	S	184	+ 16
Jul525	0		0	0	S	402	+ 30
Jul550	0		0	0	S	636	+ 32
Jul600	0		0	0	S	1136	+ 34
Aug450	0		0	0	S	31	+ 03
Aug475	0		0	0	S	91	+ 05
Aug500	230	B	234	230	S	234	+ 04
Sep450	0		0	0	S	72	+ 12
Sep475	0		0	0	S	162	+ 12
Sep500	0		0	0	S	330	+ 20

Quotation for March 10, 1987 at 16:02 (4:02 PM). The futures delivery month and the strike price are given in the *Puts* column to the left. The premiums are quoted under the *Open, High, Low* and *Closed* columns and are given in 1/8 of a cent. For example, the May $5.00 strike price closed at 134. (134 = 13 4/8 = 13.5¢ = $0.135.)

Figure 4-12 Computer printout of a soybean put option quotation.
Source: Ohio Farm Bureau ACRES Electronic Market News Service.

Expiration

Since the option contract has a futures contract as its underlying commodity (grain), there will be option contracts available for the grain for which futures contracts are currently being traded. However, generally fewer options are available than there are futures delivery months for any given grain. An option is designated by both the month and strike price. For example a $5.25 March put option is an option to sell a March soybean futures contract at $5.25. This option to obtain the underlying futures contract can be executed by the holder on any business day until late in February, at which time the option expires. Thus, your option expires late in the month before your futures contract delivery month. It will still be referred to as the "futures delivery month."

In some situations, letting your option expire may be the most economical route for you, providing the price of grain is above your strike price. You will have invested the cost of the premium and the commission as a form of "price insurance" and risk reduction.

Liquidation or Closing Out Option

A third way to terminate your position is to sell your option through your broker on the grain exchange. The value of your option on the market will depend upon the amount of the premiums.

Value of an Option

An option may be referred to as being *in the money, at the money,* or *out of the money.* (See Figure 4-13.)

An **in the money** option is when the current futures price makes an option profitable to its holder. A put option is *in the money* when the futures price is lower than the strike price. If you hold an in the money option, you have the right to sell or to assume a short futures position at the strike price which is above the current futures price. This is sometimes referred to as the **intrinsic value** of the option - the difference between the futures price and the strike price.

If you own a $5.25 strike price put option and the underlying futures price is $5.06, its intrinsic value is $0.19 per bushel if you were to sell it back or exercise it for a futures position ($5.25 - $5.06 = $0.19).

An **at the money** option is when the strike price and the futures price are the same or

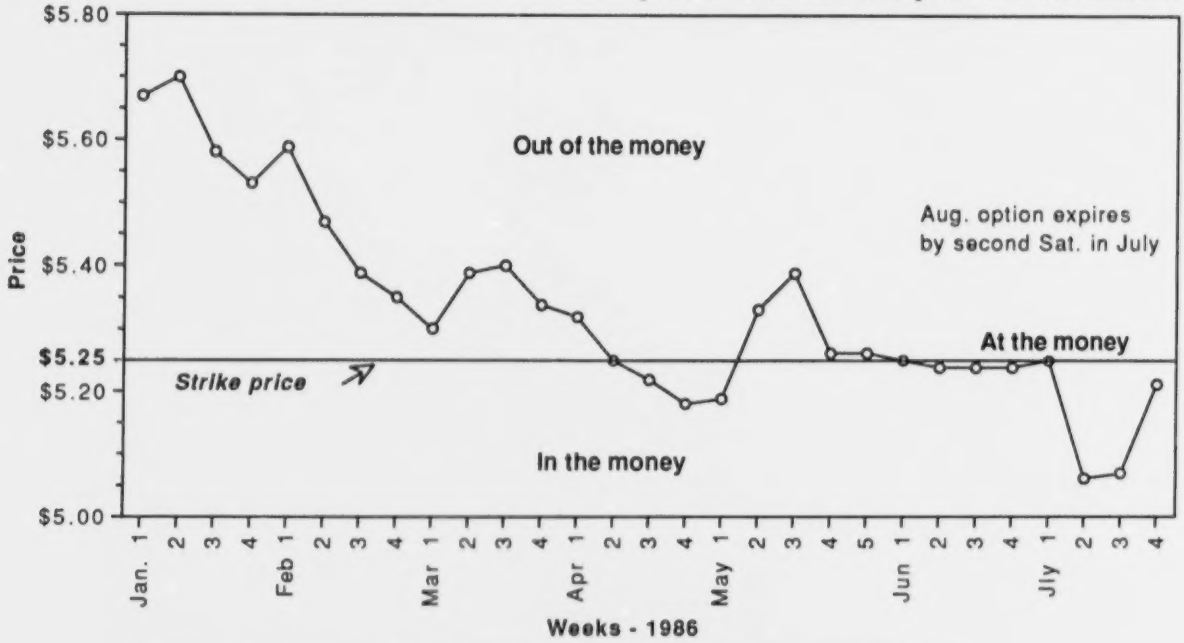


Figure 4-13 Value of a soybean put option on the Chicago Board of Trade.
Strike price was $5.25. Underlying commodity was 1986 August soybeans futures.

nearly so. Such an option is neither profitable nor unprofitable. This option has no intrinsic value.

An **out of the money** option is when the current futures price makes an option unprofitable to its holder. A put option is *out of the money* when the futures price is higher than the strike price. If you exercised such an option, you would be in an unfavorable futures position. This option has no intrinsic value. However, it cannot have a negative value, so its intrinsic value is zero.

The **time value** or **extrinsic value** of an option is more difficult to understand and to determine than its intrinsic value. In general, the longer the time before the expiration date of an option, the greater will be the amount of its time value. The reason for this is that the greater amount of time provides more opportunity for the option to move into the money. The nearer an option gets to its expiration date, the less its time value in the market becomes if you want to sell it. The reason for this is that there is less opportunity (time) for the option to move into the money. Usually the time value will not fall all the way to zero.

Interest rates affect the time value of an option to some extent. High interest rates mean less money is available and they cause premiums to go down in cost. Low interest rates mean more money is available and they cause premiums to go up in cost.

The more the market fluctuates (volatility of the market), the greater will be the option premium because option writers have more difficulty in predicting the market.

Out of the money and *in the money* options have a value which shows time value. An *in the money* option has both extrinsic (time) value and intrinsic value.

Procedures for Using Grain Option Market

As with hedging you must work through a broker when using the option market. Your broker will help you with the procedures for using options. However, you must make your own decisions for any actions you take in the market. See "Mechanics of Futures Trading" in Chapter 3.

When purchasing a put option, you are in effect establishing a price below which you will not have to sell your grain. If the cash price is above your established price, you let your put option expire and sell your grain in the cash market.

Preliminary Steps before Purchasing Options

1. Localize the strike price by adjusting it to determine what minimum selling price it is offering in your local market. To do this, subtract four items from the strike price:

   - Premium
   - Historic basis
   - Interest on premiums
   - Brokerage fee

2. Determine the amount of grain for which you plan to establish a price floor by purchasing options.

3. Study market and outlook reports and predict the direction in which you think the market will move between the time you purchase the option and its expiration date.

4. Assess market conditions to determine if the option premium you pay for establishing a floor price for your grain is worth the cost.

5. Select the action that appears most favorable for you.

Steps In Using Put Options

All options transactions must be conducted through your broker.

- Purchase put options (5,000-bushel contracts) to cover the grain you expect to produce or have in storage. Pay the premium.

- Prior to the options expiration date, if the price of cash grain is *above* your options floor price, let it expire and sell your grain in the cash market.

- If the price of cash grain is *below* your options floor price:
  - sell your option or
  - exercise your option and close out your futures positions.

Put Option Example 1

Situation

You are raising 200 acres of soybeans and expect a yield of at least 35 bushels per acre. This would give you 7,000 bushels of cash soybeans to sell. A floor price should be established for 5,000 bushels by purchasing one put option.

May 15
You are growing what you expect to be 7,000 bushels of soybeans.
Choose to purchase one put option (5,000 bu).
Strike price $6.75/bu
Premium $0.40/bu
Historic basis at home market - $0.30

October 15

Cash price	$4.72
Nov. futures price	5.02
Basis	- 0.30
Premium	1.76
	in the money up from $0.40
Trading cost	0.04

On May 15 you localized your strike price to obtain your minimum selling price.

Strike price		$6.75
Less:		
Premium	-$0.40	
Historical basis at harvest	-0.30	
Interest on premium	-0.03	
Broker fee	-0.01	
		- $0.74
Minimum selling price		$6.01

Price protection with options trading.
Declining cash and futures prices, strengthening basis.

The table at the bottom of the page shows how the trading could go.

Cash price	$4.72
Gain in option premium	+ 1.36
Less trading costs	- 0.04
Net price	$6.04

In this period of declining cash and futures prices, the basis strengthened. The option was *in the money* and was worth $1.76 per bushel. When the additional premium was added to the cash price of soybeans, it resulted in a net selling price slightly above the predicted minimum selling price. This option paid a large dividend.

Put Option Example 2

Situation

The May 15 situation and the minimum selling price of $6.01 is the same as that given in

Date	Option	Underlying Futures	Premium	Basis
May 15				
Growing soybeans	Buy 1 Nov. option	Nov. futures $6.75		
Expected yield- 7,000 bu	5,000 bu		$0.40	- $0.50
Cash price $6.25	Strike price $6.75			
Oct. 15				
Sell 5,000 bu soybeans	Sell 1 Nov. put option	Nov. futures $5.02	$1.76 (in the money)	-$0.30
Cash price $4.72				
			+$1.36	+$0.20

Example 1. However, the situation on October 15 has changed. Adverse U.S. and foreign weather conditions have reduced world soybean supplies causing the November futures price and the September cash price to increase. The basis in this example has strengthened.

October 15

Cash price	$7.60	
Nov. futures price	7.90	
Basis	- 0.30	
Premium	0.00	(out of the money) (no intrinsic value)
Time value	0.005	(extrinsic value)
Trading cost	0.04	

The table at the bottom of the page shows how the trading would go.

Cash price	$7.60	
Less premium	- 0.40	(out of the money)
Less trading costs	- 0.04	
Net price	$7.16	

In this period of increasing futures and cash prices the put option was *out of the money* and had no intrinsic value. There might have been a small time value (extrinsic) if a trader thought the option would move into the money. (Exercising this option would have meant selling it for $6.75 and, in closing out your position, repurchasing it at $7.90.)

After the option trading costs were subtracted from the cash price, your net price was lower than the cash price you would have received without the option. However, you did have the satisfaction of knowing that you would not have to sell your soybeans below $6.01 per bushel. After all, in May you did not know that world weather conditions would be unfavorable for growing soybeans.

How Much Price Insurance Should Be Purchased?

In our examples the producer chose a strike price of $6.75. Soybean strike prices are quoted in $0.25 intervals. This means the producer could have purchased more or less price protection.

The following table gives a comparison of three different strike prices. The different premiums depend upon the bidding on the Chicago Board of Trade: The brokerage fee of $0.01 per bushel would remain the same for each strike price. However, the interest charges would be less for the lower premium and more for the larger premium.

Strike Price Nov. Option	Premium Nov. Option	Brokerage & Interest Costs	Minimum Selling Price (Historic Basis- $0.30)
$6.50	$0.25	$0.03	$5.92
6.75	0.40	0.04	6.01
7.00	0.62	0.06	6.02

Determining minimum selling price

Strike price	**$6.50**	**$6.75**	**$7.00**
Less:			
Historic basis	- 0.30	- 0.30	- 0.30
Premium	- 0.25	- 0.40	- 0.62
Broker fee	- 0.01	- 0.01	- 0.01
Interest	- 0.02	- 0.03	- 0.05
Minimum selling price	$5.92	$6.01	$6.02

Date	Option	Underlying Futures	Premium	Basis
May 15				
Growing soybeans	Buy 1 Nov.	Nov. futures $6.75		
Expected yield- 7,000 bu	put option 5,000 bu		$0.40	- $0.50
Cash price $6.25	Strike price $6.75			
Oct. 15				
Sell 5,000 bu soybeans	Let Nov. put option expire	Nov. futures $7.90	0.00 (out of the money)	- $0.30
Cash price $7.60	Or sell it when value exists			
			- $0.40	+ $0.20

In this situation dropping the strike price from $6.75 to $6.50 lowered the minimum selling price $0.19 per bushel. Increasing the strike price from $6.75 to $7.00 increased the minimum selling price only $0.01. Each situation is different. Your historic basis will differ and premiums are variable. Interest and broker fees are also changeable.

Commodity Options Advantages

1. Options could be considered as price insurance with the cost being the premium and the commission.
2. No margin account is needed unless the option holder exercises the option and buys/sells the futures contract.
3. When an option is purchased at a given strike price, this price is the floor under which you will not have to sell your grain.
4. All other marketing alternatives are still available.
5. Unlike hedging the option holder has unlimited profit potential from favorable price movements while being protected against unfavorable price changes.
6. Using options removes the risk of having to make delivery of a specific amount of grain as with forward contracting or hedging. You will not have to buy grain to fulfill a contract if your production falls below your contract amount.
7. Options permit producers to plan price protection well in advance of harvest.

Commodity Options Disadvantages

1. Options may not be available for all futures contract months.
2. The cost of premiums may be considered too expensive for the rights received. When prices fall, hedging and forward contracting may result in a higher price for your grain than options would.
3. The full cost of the premium must be paid at the time of the purchase; this increases your interest charges.
4. Brokers and producers must learn new terms, definitions and procedures to use this new marketing alternative properly.
5. A good understanding of the futures market is required to use the options market successfully .
6. If, due to adverse weather, your production falls below the amount of grain your option contract specifies, your premium will have to be spread over fewer bushels. This will result in a higher per bushel premium cost.

For example:

10,000 bu @ $0.40/ bu premium = $4,000 total premium.
If your production was reduced to 8,000 bushels, your actual per bushel premium would be $4,000.
$4,000 ÷ 8,000 bu = $0.50/bu premium.
(This is still less costly than having to enter the cash market to purchase 2,000 bushels to make up a shortage in forward contract delivery.)

Examples of contract highlights for options on soybean and corn futures are given in Figure 4-14.

DEFERRED PRICING

Delayed Price Contract

In this marketing alternative, a producer delivers the grain to the elevator either at harvest or out of on-the-farm storage. Title to the grain transfers when delivered to the elevator. The elevator is not required to keep this grain in storage. A producer has the opportunity to set the price at some future date of his or her choosing when satisfied with the price. There are service charges by the elevator to cover elevator costs and estimated basis appreciation.

Steps in Delayed Pricing

1. When you are considering the advisability of delayed pricing of your grain, contact several potential grain buyers. Some buyers may offer lower service charges because they have either more efficient operations or more need for your grain.

2. Determine the conditions of the dealer's delayed pricing contract. They may vary somewhat from one buyer to another. The delivery requirements may be similar to those found in the forward pricing contract. The amount of the service charge must be noted. The service charge will be based

OPTIONS ON SOYBEAN FUTURES

CONTRACT HIGHLIGHTS

BASIC TRADING UNIT One 5,000 bushel soybean futures contract of a specified contract month.

DESCRIPTION At any time prior to expiration, the buyer of one soybean futures option may exercise the option to assume a position in one soybean futures contract (long if the option is a call and short if the option is a put)...of a specified contract month...at a strike price set when the option was bought.

Upon exercise, the seller of one soybean futures option assumes an opposite position in one soybean futures contract (short if the option is a call and long if the option is a put)...of a specified contract month...at a strike price set when the option was sold.

STRIKE PRICE Trading shall be conducted with strike prices in integral multiples of 25 cents per bushel. (e.g., $5.75, $6.00, $6.25, $6.50, $6.75, etc.)

PREMIUM PAYMENT The premium must be paid in full by each clearing member to the Clearing Corporation... and by each option customer to their commission merchant...when the option is bought, or within a reasonable time thereafter.

PRICE QUOTATION Multiples of 1/8 of one cent per bushel of a 5,000 bushel soybean futures contract which equals $6.25 per option contract.

DAILY TRADING LIMIT Same as daily trading limit for soybean futures, currently 30 cents per bushel ($1,500 per contract) above and below the previous day's settlement premium. Variable limits are also the same as those for futures, currently, forty-five cents ($2,250).

EXERCISE The buyer of a soybean futures option may exercise the option on any business day prior to expiration by giving notice to the Clearing Corporation by 8:00 p.m. (Chicago Time). The Clearing Corporation, through its clearing members, will then assign the notice to an option seller.

The Clearing Corporation will establish a futures position for the buyer (long if the option is a call and short if the option is a put) and an opposite futures position for the seller at the strike price before the opening of trading on the following business day.

LAST TRADING DAY Soybean futures options cease trading in the month prior to the futures contract delivery month. Options stop trading at 12:00 Noon on the last Friday which precedes by at least ten business days, the first notice day for the corresponding soybean futures contract. For a November '85 futures option, trading would stop at 12:00 Noon on Friday, October 11.

EXPIRATION Unexercised soybean futures options shall expire at 10:00 a.m. on the first Saturday following the last day of trading.

MONTHS TRADED Same as for CBOT soybean futures; currently January, March, May, July, August, September and November.

TRADING HOURS (CHICAGO TIME) 9:30 a.m. to 1:15 p.m.

EXCHANGE TICKER SYMBOL Puts – PZ, Calls – CZ

OPTIONS ON CORN FUTURES

CONTRACT HIGHLIGHTS

BASIC TRADING UNIT One CBOT 5,000 bushel corn futures contract of a specified contract month.

DESCRIPTION At any time prior to expiration, the buyer of one corn futures option may exercise the option to assume a position in one corn futures contract (long if the option is a call and short if the option is a put)...of a specified contract month...at a strike price set when the option was bought.

Upon exercise, the seller of one corn futures option assumes an opposite position in one corn futures contract (short if the option is a call and long if the option is a put)...of a specified contract month...at a strike price set when the option was sold.

STRIKE PRICE Trading shall be conducted with strike prices in integral multiples of 10 cents per bushel. (e.g., $2.80, $2.90, $3.00, $3.10, $3.20, etc.)

PREMIUM PAYMENT The premium must be paid in full by each clearing member to the Clearing Corporation... and by each option customer to his commission merchant...when the option is bought, or within a reasonable time thereafter.

PRICE QUOTATION Multiples of 1/8 of one cent per bushel of a 5,000 bushel corn futures contract which equals $6.25 per option contract.

DAILY TRADING LIMIT Same as daily trading limit for corn futures, currently 10 cents per bushel ($500 per contract) above and below the previous day's settlement premium. Variable limits are also the same as those for futures, currently, fifteen cents ($750).

EXERCISE The buyer of a corn futures option may exercise the option on any business day prior to expiration by giving notice to the Clearing Corporation by 8:00 p.m. (Chicago Time). The Clearing Corporation, through its clearing members, will then assign the notice to an option seller.

The Clearing Corporation will establish a futures position for the buyer (long if the option is a call and short if the option is a put) and an opposite futures position for the seller at the strike price before the opening of trading on the following business day.

LAST TRADING DAY Corn futures options cease trading in the month prior to the futures contract delivery month. Options stop trading at 12:00 Noon (Chicago Time) on the last Friday which precedes by at least ten business days, the first notice day for the corresponding corn futures contract. For a December '85 futures option, trading would stop at 12:00 Noon on Friday, November 8.

EXPIRATION Unexercised corn futures options shall expire at 10:00 a.m. on the first Saturday following the last day of trading.

MONTHS TRADED Same as for CBOT corn futures; currently March, May, July, September and December.

TRADING HOURS (CHICAGO TIME) 9:30 a.m. to 1:15 p.m.

EXCHANGE TICKER SYMBOL Puts – PY, Calls – CY

Figure 4-14 Contract highlights for options on soybeans and corn futures

upon the dealer's costs in handling the grain. They will vary depending upon how the grain is handled. It may be one or more of the following:

- Stored - storage costs will vary depending upon availability
- Transported - transportation costs
- Hedging by the dealer- margins and broker fees
- Sold to a terminal elevator for cash
- Losses suffered due to handling and storage

An example of a forward pricing contract is shown in Figure 4-15.

3. Study your market news and outlook reports to determine whether or not you can expect prices to increase. You might consider delayed pricing if you expect futures prices to increase and the basis to strengthen.

4. Sign the contract and establish the time span during which you can price the grain.

- Deliver your grain. At that time the title transfers to the buyer.
- At a later date before the contract expires, contact your buyer and price your grain. The price will be the buyer's cash bid price on that day minus the service charge that was specified in the contract.
- Payment is usually made when the seller prices the grain.

Situation

October 1

Cash corn price, local elevator	$2.50
January corn futures	- 2.75
Local basis	- $0.25

You predict cash prices will increase due to a futures price increase and a strengthening of the basis. Your records show the local historic basis for January 2 to be - $0.15.

November 15
You have completed much of your harvest and signed a delayed price contract with your local elevator and delivered your corn. You can now price your corn at any time up to the date your contract expires.

January 2
Your prediction was correct; the basis did strengthen to - $0.15.

Cash corn price, local elevator	$3.15
January corn futures	- 3.30
Local basis	- $0.15

Your January 2 transaction would look like this:

October 1 Local cash price	**$2.50**
January 2 Sold cash corn at	$3.15
Local elevator fee	- 0.30
January 2 Net price	$2.85

This resulted in a gain of $0.35.
($2.85 - $2.50 = + $0.35)

If the basis had not strengthened as much as you anticipated and the cash price increased to only $2.75, your transaction would look like this:

October 1 Local cash price	**$2.50**
January 2 Sold cash corn at	$2.75
Local elevator fee	- 0.30
January 2 Net price	$2.45

This resulted in a loss of $0.05.
($2.45 - $2.50 = - $0.05)

If the situation had been even worse and the cash price remained the same, your transaction would have looked like this:

October 1 Local cash price	**$2.50**
January 2 Sold cash corn at	$2.50
Local elevator fee	- 0.30
January 2 Net price	$2.20

This resulted in a loss of $0.30.
($2.20 - $2.50 = - $0.30)

When you contract for delayed pricing of your grain, you are speculating on the direction in which prices will move. Hopefully, your predictions will be correct more often than not. If you do not have on-farm storage space, this is a way to move the grain off your farm at harvest. The local elevator hedges forward priced grain

DELAYED PRICE AGREEMENT

Date _____ _____

Crop year _____

Commodities under this agreement: _____
GRAIN BUSHELS

It is hereby agreed that I, the undersigned seller, may from time to time, by my own choice, sell and deliver to the undersigned buyer, agricultural commodities as listed above, on which the price is to be established at a later date. I pledge that the commodities delivered pursuant to this agreement shall be free of any lien or encumbrance.

In selling commodities under this agreement, I, the seller, fully understand that I am transferring title to the undersigned buyer upon delivery, and that after delivery, I am creditor of the buyer for the market value of commodities so delivered until the price is established and the settlement is complete. If the buyer defaults in his/her obligation for settlement, I am common (unsecured) creditor of the buyer for the value of commodities not settled for.

Upon demand by the seller, the buyer is obligated to pay his/her regular bid price on the date of demand for the commodities being priced by the seller which have been delivered under this agreement, less any service charge which is due and payable to the buyer as marked on the scale ticket. Each scale ticket which is marked for Delayed Price hereby becomes a part of this agreement. The buyer shall pay the same price as he/she is bidding for like commodities being delivered to him/her for sale on that date by other sellers.

THE FOLLOWING SERVICE CHARGES PER BUSHEL SHALL APPLY TO THIS AGREEMENT:

- Free to August 1, 1986
- Then 6¢ to Sept. 15, 1986
- Then 15¢ to Jan. 1, 1987
- Then 0.1¢ per day to June 30, 1987
- Then new crop rates shall apply until processed.

If, after the signing of this agreement and the delivery of commodities thereon, the buyer causes a change to be made in the method of pricing or in the service charges as listed hereon, which would apply to the delivery of commodities after said change, a new agreement shall be signed between the buyer and the seller showing the date of the new agreement and the new service charges which are then in effect.

_____ I am not demanding a payment guarantee from the buyer: _____
seller int.

_____ I have read this agreement and I am familiar with its terms.

_____ seller

_____ address

_____ _____
authorized signature authorized signature

UNDER THE REQUIREMENTS OF ODA RULE # 901: 7-2-17, THIS AGREEMENT MUST BE SIGNED BY THE SELLER, AND THE ORIGINAL RETURNED TO THE BUYER IN ADVANCE OR AT THE TIME OF DELIVERY UNDER THIS AGREEMENT.

Figure 4-15 Example of a delayed price agreement

for protection against unfavorable movements. A fee is charged to cover handling costs and any strengthening of the basis that might occur after the elevator has sold your grain. In a sense you are letting the elevator do your hedging for you, except that you are not protected from a downward movement.

The amount of the service charge should be compared with the cost of commercial storage. If the service charge is equal to or more than commercial storage charges, you may want to consider storing your own grain. In this way you keep the title to your grain and can speculate on price movements.

Advantages of Delayed Pricing

1. The producer can deliver grain at harvest but does not have to accept harvest prices. A producer has the option to set the price later when it is anticipated prices will be higher.

2. This alternative lengthens the grain marketing year to capture any price improvements.

3. On-farm or commercial storage is not needed.

4. The producer does not need to worry about maintaining grain quality or any other storage problems.

5. This option may aid in income tax management.

Disadvantages of Delayed Pricing

1. Because this alternative does not lock in either price or basis, the producer assumes the risk of declining prices.

2. The producer pays service charge for the privilege of pricing later.

3. The elevator takes title to the grain at delivery and may sell it. However, the producer is protected by the Ohio H.B. 770. (See the Ohio Commodity Handlers License in Chapter 2.)

4. The producer earns no interest money even though title to the grain has been given up.

Basis Contract

It is possible to lock in a basis, either over or under futures price, for a specific futures contract month. A producer may enter into a contract to deliver a specified amount of grain to a specified location at the predetermined basis. As with the forward-cash contract, title changes when the basis contract is signed, not when the grain is priced or delivered. It is critical to have historical basis information before using this marketing alternative. The price level a producer receives will be the futures price in the contract month agreed upon on the date the producer decides to price the grain, plus or minus the basis stated in the basis contract. The basis contract is a delayed contract except that basis is set and the price can fluctuate. Some elevators will, if requested, advance 70 to 80 percent of the value of the unpriced contract when the grain is delivered.

Steps in Using the Basis Contract

1. The basis contract is negotiated with your local grain buyer(s). Your first step is to contact the elevator(s) you want to deal with.

2. Study the contract form to be sure you understand the specified conditions. Contracts may vary slightly from one buyer to another.

   What are the conditions for delivering grain?
   - grading procedures
   - moisture determination
   - discount schedules

   Is a fee charged?

   Establishment of the accepted basis
   Can the contract be extended if you think prices will improve still more in the future?

   Transfer of grain ownership
   Will an advanced payment be made upon delivery of the grain?

   An example of a contract form used by one grain buyer for either delayed pricing or basis contract is shown in Figure 4-16.

MID-STATES TERMINALS, INC.

1301 Miami Street • P.O. Box 357 • Toledo, Ohio 43691

- (419) 691-5703
- (800) 472-9573 (OH)
- (800) 551-1958 (MI-IN)

CONFIRMATION OF PURCHASE

A Subsidiary Of Country Gard

CONTRACT NO. _____

CONTRACT DATE _____ TIME _____ BROKER _____

OFFICE _____ CUSTOMER TRADER _____

MST TRADER _____ YOUR CONTRACT NO. _____

SELLER

The following confirms the terms of the contract between the Seller and Buyer:
The Seller hereby sells and agrees to deliver, and the Buyer hereby purchases and agrees to receive in the amounts and on the Terms and conditions hereinafter set forth, the following:

QUANTITY _____ GRADE & COMMODITY _____

PRICE _____ DLVD/FOB _____

MARKET CENTER _____ BASIS CBOT _____

UNPRICED BASIS MUST BE PRICED BY _____ FUTURE PRICE _____

TIME OF SHIPMENT _____

WEIGHTS TO GOVERN _____ GRADES TO GOVERN _____

DISCOUNT SCALE/REMARKS _____ PAYMENT TERMS _____

This purchase is made subject to the trade rules of the National Grain and Feed Dealers Association.
We reserve the right to limit pricing subject to when the Chicago Board of Trade is open and trading.
SELLER CERTIFIES TITLE TO THE GRAIN BEING SOLD
See Reverse for Additional Terms and Conditions

MID-STATES TERMINALS, INC.

Bought By _____

Please sign and return duplicate copy of this contract.
Failure to do so or to take exception immediately will constitute acceptance. E & OE

Seller _____
By _____
Date _____

Figure 4-16 A confirmation of purchase form - front

BEST COPY AVAILABLE

TERMS AND CONDITIONS

1. The rules and regulations of the National Grain & Feed Association shall govern except as modified or limited herein. Buyer & Seller agree to be bound by the terms of the National Grain & Feed Association rules. Buyer and Seller agree that all disputes and controversies between them with respect to this contract shall be arbitrated according to said rules and regulations, that the decision and award determined thereunder shall be binding on Buyer and Seller, and that judgment thereon may be entered in any court of competent jurisdiction.

2. Buyer's premiums and discounts at time of delivery to apply unless otherwise stated.

3. Seller shall pay any increase in freight rates or taxes and assessments occuring after the date of this Contract.

4. **Margin Deposits**. When the market price exceeds the contract price, Buyer may require Seller to deposit with Buyer the difference between market price and contract price on the undelivered balance, until the balance is delivered. If more than one contract is outstanding with Seller, the aggregate balance on all open contracts may be considered for purposes of determining the margin. Any margin deposit required pursuant to this paragraph shall be deposited within 24 hours after request. Buyer may hold any such margin as collateral for Seller's future performance of open contract(s), but retention of margin deposits shall not limit other remedies available to Buyer for breach.

5. Seller warrants that the commodity delivered under this confirmation was grown within the boundary of the continental United States.

6. The commodity to be delivered hereunder is intended to be transported in interstate or foreign commerce. Seller warrants that all commodities applied against this Contract are not adulterated or misbranded within the meaning of the Federal Food, Drug and Cosmetic Act. Seller warrants that such commodities may, under the provisions of the Act, be introduced into interstate or foreign commerce. If any commodity applied to this Contract fails to comply with said Act as a result of conditions existing prior to the time title passed to Buyer, Buyer may reject such commodity. All costs incurred by Buyer with respect to any such rejected commodity shall be for account of Seller.

7. Seller guarantees that all grain supplied on this Contract will be cool and sweet on arrival. Buyer reserves the right to reject off grade grain.

8. Buyer will use its best efforts to accept the grain covered by this Contract as it is delivered. However, if acceptance is impossible due to conditions beyond Buyer's control, it does not cancel Seller's obligations.

9. **Force Majeure**.If performance by Buyer in Buyer's ordinary course of business is delayed by causes beyond the control of Buyer, such as but not limited to, labor disputes, plant breakdowns, unusually severe weather, rail car shortages, or embargoes, the Buyer shall be relieved of further performance of this Contract, or at Buyer's option, such performance may be suspended for a reasonable period of time equal ot the delay.

10. Acceptance of any delivery of commodities by Buyer after breach of the terms and conditions of this Contract by Seller shall not waive any rights or remedies available to Buyer as a result of such breach.

11. Buyer shall have the right to designate reasonable alternate delivery points if necessary to expedite or facilitate Seller's performance of this Contract,but Buyer shall have no obligation to do so. Increased shipping charges under this provision shall be for Seller's account, reductions in shipping charges shall be for Buyer's account. Provided, however, if the designated alternate delivery points are solely for Buyer's convenience, increased shipping charges shall be for Buyer's account.

12. **Alteration of Terms.** None of the terms and conditions of this Contract may be added to or altered, except by mutual written consent of the parties hereto.

Date	Load No. or Confirmation No.	Bushels / Price	Balance	Date	Load No. or Confirmation No.	Bushels / Price	Balance

Figure 4-16 A confirmation of purchase form - back

3. Study market news and outlook reports. You would normally think in terms of a basis contract when the basis is strong and you predict it will weaken as the futures price increases at a faster rate than the cash price.

4. Sign the contract and establish your basis.

   The basis specified in the contract is for a specified futures contract on the day the contract is signed. (For example, the basis for a July futures contract on October 1.)

   The price the buyer pays the seller will be the futures price quoted on the date the seller prices the grain minus the established basis. (For example, July futures quoted on June 20, the seller's selected pricing date, minus the basis established on October 1.)

Situation

October 1
You decide to enter a basis contract with your local elevator.

Cash price, corn, local elevator	$2.55
July futures price	2.75
Local basis	- $0.20

You predict the local basis will weaken as the futures price increases. You arrived at this conclusion as a result of studying your records of past market performance, which included the historic basis for your local market.

By signing the contract on October 1, you established the basis at - $0.20 (20 under), which is the basis for that day.

January 2

Cash price, corn, local elevator	$2.75
July 2 futures price	3.25
Local basis	- $0.50
Your net price received	$3.25
Less your established basis	- 0.20
Net price	$3.05

Your prediction concerning the weakening of the basis was correct and you sold your grain at 20 under the January 2 futures rather than at 50 under. This proved to be a profitable move.

What would happen if your prediction was wrong and the futures price declined and the basis strengthened?

October 1 (same as previous example)

Cash price, corn, local elevator	$2.55
July 2 futures price	2.75
Local basis	- $0.20

As in the previous example, you choose to fix the basis in your contract at - $0.20.

January 2 (new situation)

Cash price, corn, local elevator	$2.75
July 2 futures price	2.70
Local basis	+ $0.05

Your net price received:

July 2 futures price	$2.70
Less your established basis	- 0.20
Net price	$2.50

This transaction resulted in a loss of $0.05 per bushel over what you could have sold your cash grain for on October 1.

Advantages of Basis Contract

1. Alternative permits bypass of possible weak harvest time basis and corresponding low prices.

2. Producer may be able to receive up to 80 percent of the value of the contract on day of delivery. This can eliminate partial loss of interest.

3. If delivered at harvest, shrink is limited to 15.5 percent rather than storage-level shrink.

4. The basis contract eliminates basis risk.

Disadvantages of Basis Contract

1. Price risk is still open.

2. Chance for further basis appreciation is eliminated.

3. Use is limited to knowledge of historical basis by seller and level of knowledge of this type of contract by elevator operator.

4. Elevator can recall a part of the advance (if made) if the market turns against the producer before grain is priced. This means that if the market declines more than the unpaid balance, the elevator may recall a part of the advance. (For example: The basis contract is $.30 under May. May futures is $3.30 at time of delivery; therefore, price is $3.00 per bushel. If advance is 80 percent, a payment of $2.60 per bushel will be made. If May futures drops below $2.90, elevator may request repayment.)

5. It has limited application.

GOVERNMENT PROGRAMS

The government farm program varies depending on crop production, prices, economic conditions, and political considerations. Normally, producers have the opportunity to participate in the government farm program by idling a certain percentage of their grain acreage. In return, harvested grain can be placed under government loan or reserved for special prices. Certain advantages are given to participants if conditions are met to qualify them for these programs. Check with your local Agricultural Stabilization and Conservation Service (ASCS) office to determine current program requirements and advantages.

Advantages

1. The government farm program provides a price floor for the farmer.

2. The participant may receive loan payment by delivering grain to the government.

3. The participant may receive deficiency payment based on target price and average price paid farmers during first five months of marketing year.

4. The government program may be tied to other marketing alternatives such as the forward contract, basis contract, etc.

Disadvantages

1. Participants must limit planting.

2. The government program may, in the long run, price grain out of the world market. Other countries will then capture export trade because U.S. prices are higher than world prices.

3. The participant may have to assume storage costs for part of the season.

SUMMARY OF GRAIN MARKETING ALTERNATIVES

A summary of six marketing programs is presented in Figure 4-17. This is by no means *all* the alternatives. Government programs are excluded from the summary. Most of the alternatives are more complicated than the ones presented and should be used only by those experienced in the grain trade. Also, some of the other alternatives have a higher degree of speculation involved than those described in this manual.

Figure 4-17 Summary of grain marketing alternatives

	CASH SALE	FORWARD CONTRACT	FUTURES CONTRACT HEDGING	OPTIONS CONTRACT	DELAYED PRICING CONTRACT	BASIS CONTRACT
Whom to Contact	Local elevator or terminal	Local elevator or terminal	Commodity broker	Commodity broker	Local elevator or terminal	Local elevator or terminal
Price	At time of delivery	Specific price established	Price received varies as basis changes	When option is exercised or sold, or it expires and grain is sold	Determined by producer before contract expires	Set basis Speculate on futures Priced when sold
Funds Required	None	No margin requirement	Initial margin and any margin calls	Option premium	Cost of service charge	None
Contract Terms	Scale ticket and grain check	May vary among grain buyers	Standard Board of Trade contract	Right, but not obligation, to exercise option	Varies among grain buyers	Varies slightly among grain buyers
Delivery	At discretion of seller	Required at specified date	Usually close out futures position to prevent delivery	No delivery required	Make delivery at time contract entered into	Make delivery at time contract entered into
Amount of Grain	Variable	Variable	Contract sizes- 5,000 bu CBT 1,000 bu MidAm	Based on underlying futures contract. Units of 5,000 bu	Variable	Variable
Knowledge Required	Understanding of grading and dockage	Understanding of terms of contract	Understanding of futures trading and knowledge of basis	Understanding of options terms and procedures	Understanding of basis desirable	Historical basis must be established
Flexibility	Can deliver grain at any time	Can not be canceled	Can lift hedge at any time	Can exercise, sell or let expire Unlimited flexibility	Terms of contract must be met	Contract can not be canceled but can be rolled forward
When Payment Is Received	At time of delivery	At time of delivery	When cash grain is sold and hedge is lifted	When option expires or is sold or liquidated and cash grain is sold	When producer decides to price grain	Initial partial payment may be made Remainder when price is established
When Title Changes Hands	When grain crosses scales	When contract is signed	When cash grain is sold	When cash grain is sold	When grain is delivered to elevator	When contract is signed
Preplanting or Planting to Harvest	O No grain to sell	X Grain expected to grow or being grown	X Grain expected to grow or being grown	X Grain expected to grow or being grown	O No grain to price	O No grain on which to establish basis
New Crop	X At harvest or from storage	X Grain being harvested or in storage	X Grain being harvested or in storage	X Grain being harvested or in storage	X Grain delivered to elevator from storage	X Grain delivered to elevator from storage
Old Crop	X From storage	X Grain in storage	X Grain in storage	X Grain in storage	X Grain delivered to elevator from storage	X Grain delivered to elevator from storage

X applicable O not applicable

CHAPTER 5

DEVELOPING A GRAIN PRODUCTION AND MARKETING PLAN

PRICING YOUR GRAIN

You would like to sell your grain at the top price for the marketing year. However, you realize that unless you are very lucky you will not be able to do this. The top price will probably not be bid for more than one or two days or at most for only a few days during the year. Besides, when top price is bid for your grain, you may well think it is too low and wait for a still higher price that is never bid.

Hopefully you will do better than about 75% of producers who sell their corn in the low one-third of the price range. Figure 5-1 shows the Toledo high, low, and average prices offered for the years 1981 through 1987. Figure 5-2 illustrates how the majority of producers sell their grain at the lower third of the price range.

Since it is not realistic to expect to sell your grain at the year's top price, what price range would be reasonable to establish as your goal? An example of how farmers sold their corn and soybeans during the 1984-1985 marketing year follows.

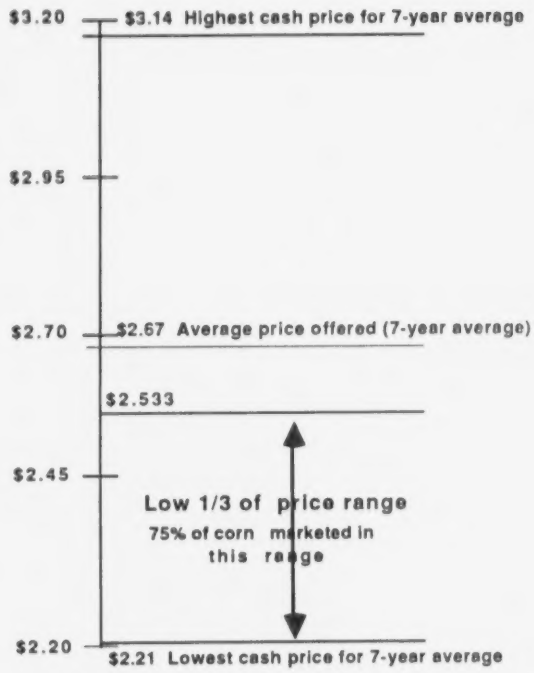


Figure 5-2 Range of seven-year average prices offered for corn.

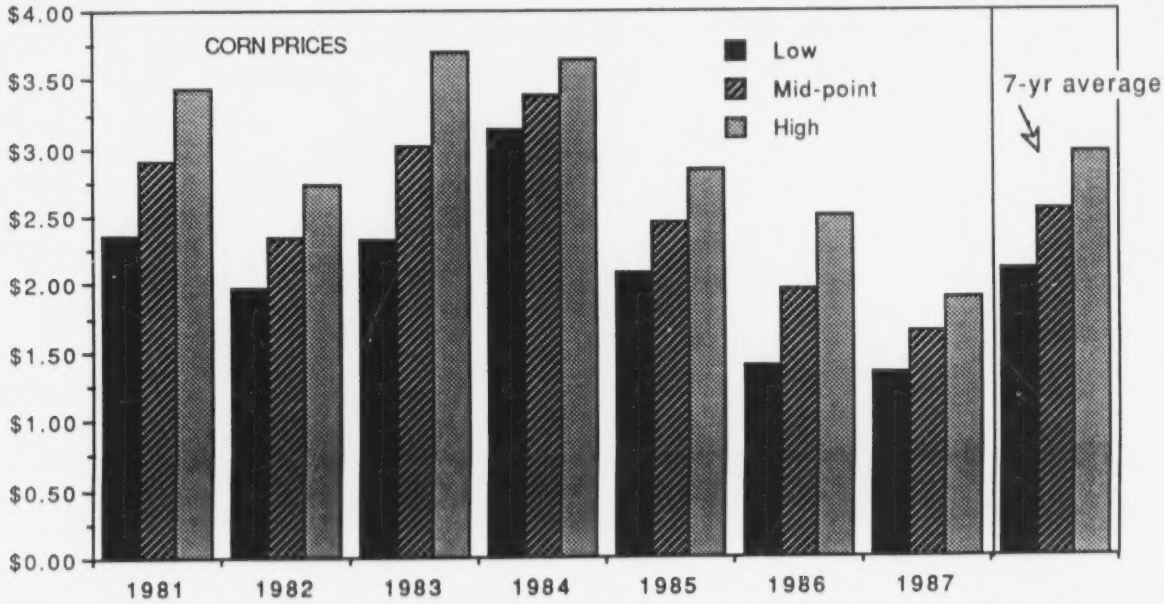


Figure 5-1 Corn prices for seven years, 1981-1987, including seven-year average, for Toledo, Ohio. *Source:* Cooperative Extension Service, The Ohio State University

Figures 5-3 and 5-4 show the monthly cash corn and soybean prices paid in Ohio during the 1984 to 1985 marketing year. Also shown is the average price received for each crop as well as the average price offered. The percentage of each crop sold during each month of the marketing year is shown.

The range between the average price paid for each crop and the top price received is much narrower than the range between the average price paid and the lowest price received. For each crop the producers who sold above the average price received were working with a much narrower margin than were those who sold below the average price received. We know the percentage of crop sold during each month. However, we have no way of knowing how many producers were in each group. It is very likely that the majority of producers sold their crops below the average price paid.

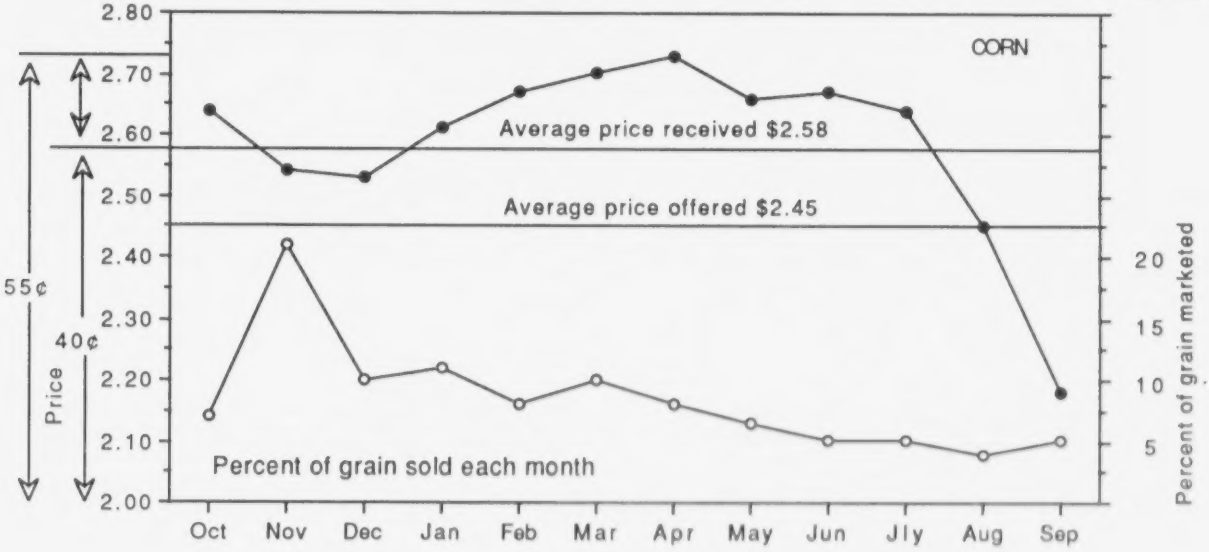


Figure 5-3 Ohio monthly cash corn prices, 1984-1985

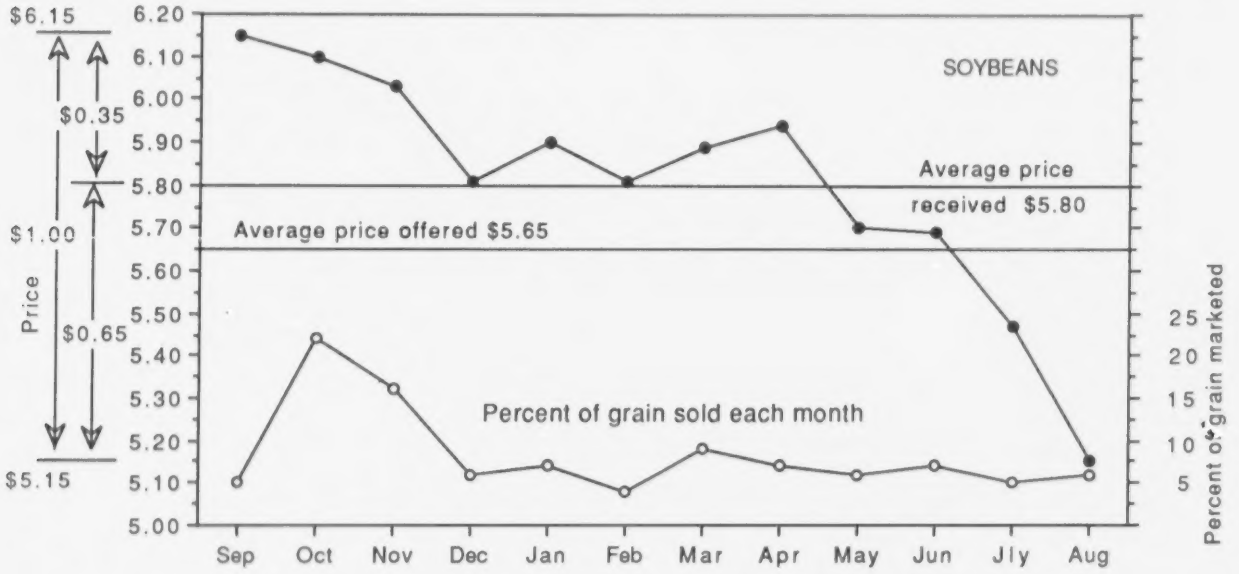


Figure 5-4 Ohio monthly cash soybean prices, 1984-1985

Setting a goal to sell your grain at the average price for the year is not bad. This involves a minimum amount of speculation and risk. This is still above the average price offered, so selling at the average price is still above average.

The maximum amount of speculation and risk would be involved if your goal is to sell your grain at the anticipated high price for the year. This strategy offers you the chance to make the most profit, but it also has the greatest risk of loss.

Many producers will establish a goal somewhere between the minimum and maximum amounts of speculation and risk. A study of current market news price charts will help you in identifying the high, low and average prices of grain. After you have established your pricing goal, what do you need to do?

1. Establish realistic goals for your farm or vocational agricultural occupational experience business.

2. Know your costs of production and the prices you must receive to break even.

3. When storage is part of your marketing plan, know storage costs, whether on-farm or commercial.

4. Know the current fundamental marketing factors and the positive or negative effect each has on grain prices.

5. Make short-term and long-range predictions of grain price trends.

6. Establish grain price goals. Set target prices you expect to receive.

7. Evaluate the production and marketing strategies available to you.

   - Which crops and how many acres of each should you produce?

   - Which marketing alternatives will best enable you to reach your target prices?

8. Develop a marketing plan that will enable you to achieve your business goals.

9. Change your marketing plan as you obtain new information. A price prediction is good only until you receive new information.

Business Goals

As a vocational agriculture student, you may not have the business pressure of a full-time farmer. However, many students' occupational experience programs do have the same or similar business demands. It is not the purpose of this grain marketing manual to fully develop the principles involved in conducting a farm business. This will be left to your farm management studies.

All businesses have cash flow needs. There are times when money is needed to meet expenses such as paying seed and fertilizer bills, paying taxes, meeting interest charges, and many other business expenses. When money to meet these expenses is not available, your marketing plan will need to provide funds to pay these bills.

The amount of equity you have in your farm business will influence the amount of risk you can take in planning for the marketing of your grain. If you have few outstanding debts, including mortgage payments, you can take more risks in pricing your grain than can a farmer with large debt loads.

As you are a beginning vocational agriculture student, your minimum goal may be to break even or at least know the price you must receive to accomplish this. Evaluate the risk you can afford to take and then set realistic pricing goals.

Production Costs as a Function of Marketing

You will select one or more of the marketing alternatives that you believe will provide you with a "good price" for your grain. However, you will not know how "good" or how "bad" the price is unless you know your cost of production. Will the price you receive generate a profit or create a loss? Unfortunately, many producers have never attempted to estimate their production costs accurately. (See Figure 5-5.)

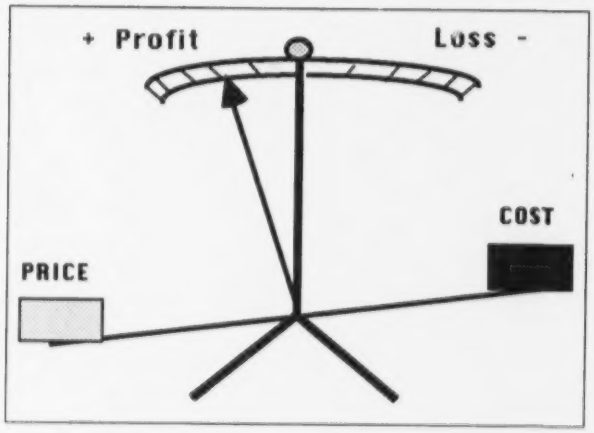


Figure 5-5 Production practices and marketing decisions influence the profit or loss result.

Several marketing alternatives will enable you to estimate the price you will likely receive for your grain. This information, along with a knowledge of your production costs, will aid you in determining which crops might create the most profit. Unfortunately, there may be years when you cannot predict making a profit or even covering your production costs. In the latter case, you may select a marketing alternative that will limit your losses, or you may decide not to produce. The plan you finally select will be determined, to a large extent, by the amount of risk you are willing or can afford to take.

Record Keeping

A good set of records is essential to a successful marketing program. You are fortunate as a vocational agriculture student in that a part of your supervised occupational experience program is record keeping. Students who raise grain crops are expected to keep records in the *Vocational Agriculture Plant Enterprise Record Book*. One important part of this record book is the "Plant Enterprise Budget." This is, in effect, a work sheet that enables you to estimate your production costs and returns. The *Teacher Guide for Vocational Agriculture Record Keeping System* will assist you and your teacher in completing the Plant Enterprise Budget. A valuable reference to be used in preparing the budget is the current *Ohio Crop Enterprise Budgets - Grains, Forages* (published by the Department of Agricultural Economics and Rural Sociology, The Ohio State University. Each of these three publications may be purchased from the Ohio Agricultural Education Curriculum Materials Service.) Another valuable reference is your previous crop enterprise records.

For farmers as well as vocational agriculture students, a good set of records is essential to a successful grain marketing program. It should be designed to effectively identify cost for individual crops. This should become easier with the use of some of the computerized accounting procedures which are available. However, it can be done with any good record system. The important point is that unless per-bushel costs are accurately and effectively determined, the farmer cannot identify a "good price," which is a price at which the farmer can sell grain, pay costs, and stay in business.

Costs should be estimated early in the marketing year, before planting, as the costs become known. For additional assistance to farmers in estimating their production costs, refer to *Grain Marketing in Ohio*, Suggested Teaching Materials, Chapter 4, "Records and Costs of Production in Grain Marketing in Ohio." This is an accounting problem and should be handled as a separate unit of instruction.

Storage Carrying Charges as a Function of Marketing

When grain is carried beyond harvest, the price you receive when it is sold must be enough higher than the harvest time price to pay the carrying charges. As pointed out in Chapter 2, this includes storage costs and interest charges for the money value of the grain.

Interest charges are relatively easy to determine, since you know the approximate value of the grain, the going rate of interest, and the length of time the grain will be stored. When you use commercial storage, you can first get a quotation of elevator charges, and then easily determine drying and storage costs. Don't forget to apply the elevator's discount schedule in determining the value of your grain.

On-farm storage costs are somewhat more difficult to determine. They will also vary from farm to farm, depending on the cost and efficiency of available facilities. As mentioned in Chapter 2, assistance in determining on-farm storage and drying charges can be obtained

from two publications listed in the references. They are *Individual Study Guide for Drying Corn on the Farm* and *Grain Marketing in Ohio*, Suggested Teaching Materials, Chapter 5, "Economics of Storage."

USING MARKET FUNDAMENTALS

One of the functions of marketing discussed in Chapter 1 was marketing information. Many market news services are available to you. Some sources of information are free or have very low costs and are available from one or more government agencies. Low cost and all, they are still excellent sources of information. There are also many commercial sources of market information that you may purchase or subscribe to. Their cost is quite variable; usually the more costly services provide more information. A number of computer access programs are available, also quite variable in cost. It is up to you to determine the level of information you require in making your marketing decisions. There is no use in paying for information that is beyond your capabilities to use in decision making. As your skills improve, your need for more sophisticated market information will increase.

The various market news services will provide you with information about the fundamentals of the market that were discussed in Chapter 1. Each fundamental market force will affect the supply of and the demand for a given commodity. Each change in one of the fundamentals of the market for a given commodity will serve as a force to push the price of that commodity either upward or downward. You will need to assess the amount of the change and whether it will have a positive or negative effect on the market. These forces do not work independently but are entwined together. One force may be pushing the price upward while another is pushing it downward. For example, a drought in Brazil that reduced the supply of soybeans would tend to push their price upward. At the same time, let's say Argentina and the United States have an excellent growing season. This would increase the supply of soybeans and push the price downward. Because of the interaction of these forces, it is impossible to state that *so many* bushels decrease in the supply of a grain will cause the price to increase by *so many* cents per bushel.

Price forecasting is not an exact science, but rather an art. In this uncertain world in which we live, don't give up, but do the best you can with the information you have available. Remember, if you work at it, you can be as well informed as anyone else in the marketing system. No one is "more intelligent" than you. As the FFA motto says, we learn to do by doing; your price-predicting ability will improve with practice.

FUNDAMENTAL FORCES AFFECTING
DEMAND FOR GRAIN
AND THEIR INFLUENCE ON PRICE

Fundamental Force	Influence on Price	
Population trends in U.S.		
Increase in population increases need for food	Increase	↑
Decrease in population decreases need for food	Decrease	↓
Domestic use of grain		
Increased domestic use	Increase	↑
Decreased domestic use	Decrease	↓
Livestock on feed		
More livestock on feed increases demand for feed grains	Increase	↑

Fundamental Force *(continued)*	**Influence on Price**
Less livestock on feed decreases demand for feed grains	Decrease ↓
Industrial uses of grain	
As industrial uses of grain increase, the demand for grain will increase	Increase ↑
Export of grain	
Exports increase causing more demand	Increase ↑
Exports decrease causing less demand	Decrease ↓
Food for humanitarian needs	
Increase in domestic and overseas use of food to feed the hungry	Increase ↑
Decrease of domestic and overseas use of food to feed the hungry	Decrease ↓
General level of prosperity	
Employment level up, more people with money to spend	Increase ↑
Employment level down, less people with money to spend	Decrease ↓
Disposable income up, more money to spend	Increase ↑
Disposable income down, less money to spend	Decrease ↓
Consumer prices up, more money required to buy needs	Decrease ↓
Consumer prices down, less money required to buy needs	Increase ↑
Promotion of products	
Improved advertising and packaging	Increase ↑
Poor advertising and packaging	Decrease ↓
Substitution of one product for another	
One grain is substituted for another or another product is substituted for grain	Decrease ↓

FUNDAMENTAL FORCES AFFECTING *SUPPLY OF GRAIN* AND THEIR INFLUENCE ON PRICE

Fundamental Force	Influence on Price
Total acres of crop planted	
Increase in intended acres to plant	Decrease ↓
Decrease in intended acres to plant	Increase ↑
Increase in acres planted	Decrease ↓
Decrease in acres planted	Increase ↑
Carryover of grain stocks	
Increase in grain carryover	Decrease ↓
Decrease in grain carryover	Increase ↑
Total U.S. production	
Increase in yield per acre and acres planted	Decrease ↓
Decrease in yield per acre and acres planted	Increase ↑
Non-U.S. world production	
Increases	Decrease ↓
Decreases	Increase ↑

OTHER FUNDAMENTAL FORCES AFFECTING GRAIN PRICES

Fundamental Force	Influence on Price
Cost of storage	
Large stocks of grain with increased demand for storage and increased costs	Decrease ↓
Adequate storage available and costs reduced	Increase ↑
Interest charges	
High interest rates with increased cost of holding grain	Decrease ↓
Low interest rates with decreased cost of holding grain	Increase ↑

Fundamental Force *(continued)*	Influence on Price	
Transportation costs		
Cost increased because transportation in short supply due to lack of equipment, strikes or unfavorable weather	Decrease	↓
Costs reduced because transportation supply adequate	Increase	↑
Amount of storage available		
Lack of storage space due to large carryover or huge crop increasing price of storage	Decrease	↓
Adequate storage space available reducing price of storage	Increase	↑
Government policies		
May reduce production	Increase	↑
May encourage excess production	Decrease	↓
Release of reserve stocks of grain	Decrease	↓
Subsidy payments received for reduced costs	Decrease	↓
Favorable trade agreement	Increase	↑
Market information		
Poorly informed producers cause poor market planning	Decrease	↓
Well informed producers improve their market planning	Increase	↑

Forecasting Grain Price Trends

You may be confused after identifying the major fundamental forces affecting grain prices and the way some push prices upward and some push prices downward. To add to the confusion, some of these forces can be more important than others. For example, a million bushels of grain going for humanitarian uses will not have as favorable an effect on price as the negotiated sale of six million bushels of grain to the U.S.S.R. Also, some favorable forces can be canceled by an equally unfavorable force. The price increase indicated by a poor crop year may be largely offset by a large carryover of grain from previous years which is more than enough to meet domestic needs.

You will need to study what the experts have to say about the influence of the different fundamental forces on prices, then make your own judgments. After you have gained some experience, don't be afraid to trust your own judgment. Experts too are often wrong in making their predictions.

Price forecasting is one of the most important parts of developing a marketing strategy. Due to constantly changing domestic and world situations, it must be a continuous process.

Become familiar with and develop an understanding of the fundamental forces that affect grain prices. Start with prices at their current level and predict their trend into the future, making constant adjustments as you receive new information.

Establishing Target Prices for Your Grain

The cash price your elevator offers for your grain is a function of futures prices and basis as explained in Chapter 3. In forecasting grain prices it is important for you to understand the basis concept. Compare the size of the current basis (strong or weak) with the historic basis pattern. Then decide whether you think the basis will strengthen or weaken as the marketing season progresses. From this decision you will elect to price your grain before harvest, to sell at harvest, to store your grain for sale from storage at a later date, or to store your grain and contract for delayed pricing.

Determining Cash Price from Futures Price and Basis

In making marketing decisions, since we are dealing with futures prices and basis, we need to know how to determine the cash price. In Chapter 3 we learned that cash price at the local level minus the futures price equals the local basis.

(*Example*: $1.62 cp – $1.88 fp = –$0.26 basis)

From this formula we can deduce that the futures price plus the basis equals the cash price, or $1.88 f.p. + (– $0.26) basis = $1.62 cash price.

Effect of Futures Price and Basis on Cash Price

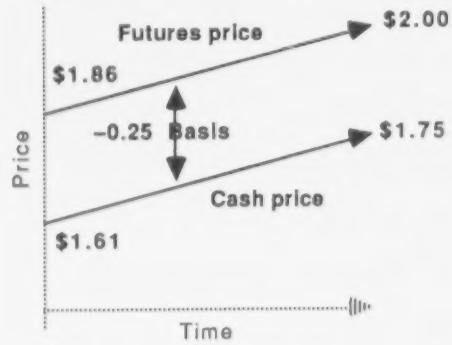
The important point is that you must estimate or forecast futures prices and basis movements (becoming stronger or weaker) to estimate changes in the local cash price. There are three outcomes:

Cash price increases
Cash price decreases
Cash price remains unchanged

For example:

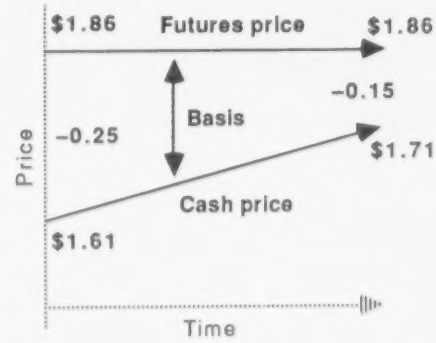
Cash price* increases *when:

1. Futures price increases, basis unchanged



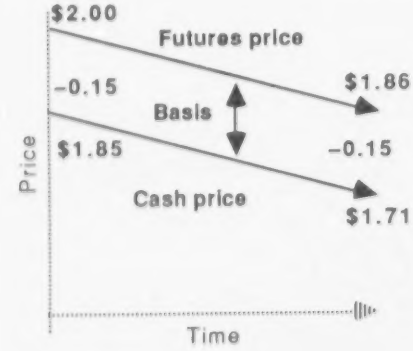
OR

2. Futures price unchanged, basis strengthens (narrows)



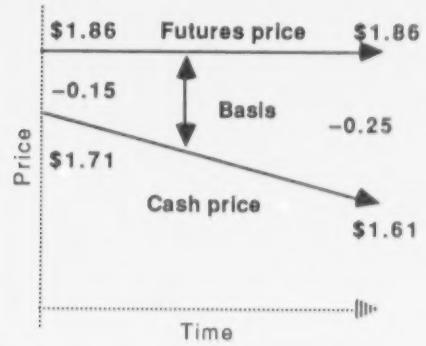
Cash price* decreases *when:

1. Futures price decreases, basis unchanged



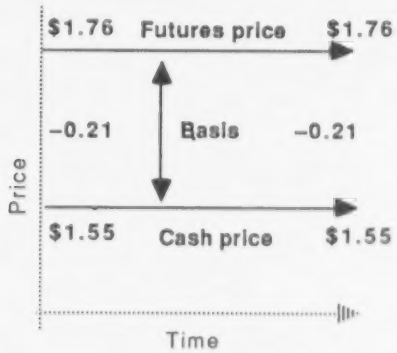
OR

2. Futures price unchanged, basis weakens (widens)



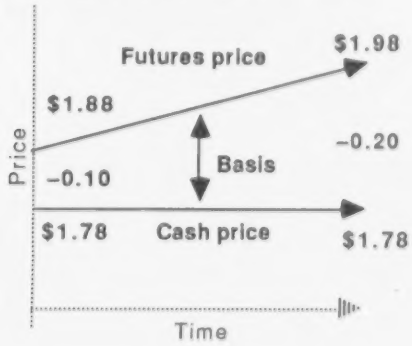
Cash price remains* unchanged *when:

1. Futures price and basis are unchanged



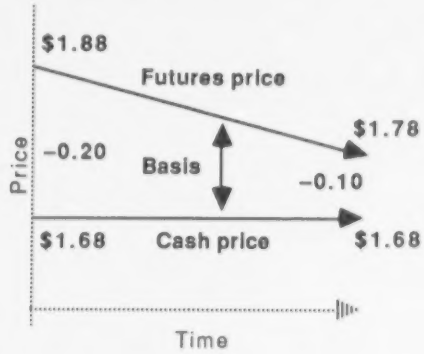
OR

2. Futures price increase is offset by a similar weakening (widening) of basis



OR

3. Futures price decrease is offset by a similar strengthening of basis



Studying the previous illustrations should help you in making price forecasts and predicting price trends. Study the market fundamentals, determine the current futures price and basis, refer to the historic basis, and then proceed with making your own predictions. Keep a record of your work so you can check your accuracy.

EVALUATING PRODUCTION AND MARKETING STRATEGIES

The grain producer is faced with risk to his/her economic well-being in two major areas:

- producing the crop
  and
- marketing the crop

Production Decisions

Crop production practices are not the focus of this grain marketing manual. You have studied the production of grain crops in other parts of your vocational agriculture program. You realize the importance of timely actions in cultivation, planting and harvesting. Other important decisions include seed selection, determining the fertility program, and following an effective weed control program. Most producers are quite efficient in making and carrying out these production decisions. However, all producers are aware that a great deal of risk is involved in each step of the production season. For example, say you do everything right during the entire growing season. At the end of it, due to poor weather conditions, your harvest is

delayed. This reduces both the quality and the quantity of grain you have to sell. Thus, your total income will be reduced.

Predicting price trends and establishing realistic target prices gives you an idea of the net price you can expect to receive for your grain. A comparison of the predicted net price with your estimated cost of production will indicate that you can:

- make a profit,
- break even, or
- lose money.

As you evaluate prospects for the crops you plan to grow, you will be faced with a variety of *possible* results:

1. Each crop will make about the same profit.
2. Some crops will make more profit than others.
3. Some or all crops will do no more than break even.
4. Some crops will make a profit while others lose money.
5. All crops will lose money.

Thus, while one production decision is to determine which crops to raise and how many acres of each, another decision is whether or not to produce a certain grain crop or crops.

Marketing Decisions

Your crop marketing decisions start when you determine the amount of each crop you will produce, where it will be dried and stored, and where it will be delivered. Your next marketing decisions deal with the time and process of pricing and include delivery and transfer of title to your grain.

The making of grain pricing decisions is influenced by:

- the seasonality of production management decisions and practices such as planning the crop production program, time of planting, time of harvest, storage decisions,

AND

- the seasonality of report availability; that is, *when* information dealing with the fundamentals of the market becomes available.

The two-year marketing season can be divided into four periods.

1st marketing period. Plans for planting to planting time. The disappearance of the old crop is the most important price-making factor.

2nd marketing period. Planting time to harvest. Old crop supply and movement still influence price, but new crop prospects have most influence on the market.

3rd marketing period. Harvest to planting time. Old crop carryover important, but new crop dominates the market.

4th marketing period. Planting time to harvest. New crop prospects begin to dominate the market.

Grain Marketing Calendar

A sample decision-making calendar for corn marketing is presented in Figure 5-6. Note that the calendar is based upon both the seasonality of production practices and the seasonality of the availability of market information. Production and flow of market information are tied together. For example, there can be no planting intentions report until producers have started or completed the production planning. This report also becomes more firm as planting time approaches and more farmers become sure of their planting situations. You may wish to prepare a similar calendar for soybeans and wheat.

Making Pricing Decisions

When making marketing decisions, you must estimate the expected change in basis. This will become easier as you become more familiar with the basis movements over time.

(continued on page 149)

Figure 5-6

CORN MARKETING DECISION CALENDAR - 1989 CROP

Showing seasonality of both production management decisions and flow of market information

First marketing period: Old crop disappearance is most important . . .

Sept. '88	Oct. '88	Nov. '88	Dec. '88

First decision point is the time of making cropping plans.

Seed orders placed. Purchase and application of fertilizer.

December corn futures on board by last of September.

After harvest, crop planning continues.

. . . price making factor

Second marketing . . .

Jan. '89	Feb. '89	Mar. '89	Apr. '89

Market reports available:

Final crop production ('88 crop) estimates.

Grain stocks (carryover)

Re-evaluate old-crop supply and disappearance.

Planting intentions ('89 crop)

Evaluate new crop prospects.
How much of the crop should be sold at harvest and at what estimated price?

Planting time.

Planting intentions report revised and updated.

April 1 grain stocks report.

Measures old crop situation and its impact on new crop prices.

period: Old crops still influence price. New crop prospects are . . .

May '89	June '89	July '89	Aug. '89
Planting time continued. (Late planting causes yield reduction.)		Weather important factor in markets. **USDA crop production estimates.** Make your forecast as to whether next year's prices will be higher or lower than current prices. Decide how much corn to price before harvest.	**USDA makes monthly . . .**

. . most important. | **Third marketing period: Old crop carryover important, . . .**

Sept. '89	Oct. '89	Nov. '89	Dec. '89
. . estimates of corn and soybean crop prospects. Production prospects dominate prices. Modify preharvest pricing decisions. As harvest approaches, make sales decisions for remainder of year: How much to store How much to price How much to delay price	HARVEST STARTS.		

Figure 5-6 CORN MARKETING DECISION CALENDAR - page 3

. . but new crop dominates market. **Fourth marketing . . .**

Jan. '90	Feb. '90	Mar. '90	April '90

Market reports available:

Final crop production ('89 crop) estimates.
Grain stocks (carryover).
Planting intentions ('90 crop).

After these reports are released, determine how much corn to take into remainder of period.

Before spring field work, decide how much corn to take into critical spring and summer weather.

PLANTING TIME

By the time new crop is planted, plans for selling remainder of crop should be made.

. . period: New crop prospects begin to dominate the market.

May '90	June '90	July '90	Aug. '90

Sept. '90	Oct. '90	

Remains of '89 crop moved out to make room for '90 crop.

HARVEST

Reasons for estimating basis changes are:

- The expected change in basis is more predictable than the expected change in price.
- The basis must be estimated to localize futures prices. That is, the known price for a hedge cannot be estimated unless the expected basis is subtracted from the futures price.
- The basis must be estimated to evaluate all marketing alternatives including selling grain at harvest via the cash market.
- The basis must be estimated as a part of the decision to store or not to store grain.

Pricing Decision Chart

To assist you in making grain marketing decisions based upon your estimate of futures price and basis movements, the Department of Agricultural Economics and Rural Sociology at Ohio State University has developed a Pricing Decision Chart* (Figure 5-7). This chart demonstrates that a change in futures price and basis alters the cash price. Also, a change in basis alone will change the cash price. The chart may be used as a guide in making all grain marketing decisions. All too often producers think only of futures and basis when they enter the futures market.

The pricing decision chart does not mention the differences in selling or pricing grain before and during harvest and in selling grain from storage. When grain is sold from storage, the price received must include carrying charges to make storage profitable. Thus, the net price received for stored grain is the cash price minus storage and interest charges.

This chart may be used over the entire marketing period, which may be up to two years. New marketing information will become available to you during this period of time. This could well give you reasons to change your prediction concerning the relationship between futures prices and the basis. Your marketing plan needs to be flexible enough to allow you to make adjustments as new information becomes available.

There are four quadrants in the pricing decision chart. Prices in the futures market may increase or decrease and the basis may strengthen or weaken. Marketing alternatives are suggested for each quadrant or price movement possibility. You may want to try marketing alternatives other than those suggested. By this time you should be proficient in determining the estimate of net price for a given marketing alternative. If you have access to a computer grain marketing program you could speed up your trial of the different marketing alternatives.

Now that you have forecast expected price trends and established your target price as discussed in the previous sections of this chapter, you are ready to select the marketing alternatives you believe to be most appropriate for your grain marketing situation.

UPPER RIGHT QUADRANT - ***futures price increases, basis weakens***

Refer to the upper right quadrant when you expect the futures price to increase and the basis to weaken. Depending upon the amount of change in the futures price and basis, the cash price may increase, decrease or remain unchanged. The marketing alternative selected should take advantage of the increase in the futures price or offset the amount the basis weakens.

One marketing alternative is suggested:

- Sell your grain via a basis contract to fix the basis, and speculate on the expected futures price.

Basis Contract Examples

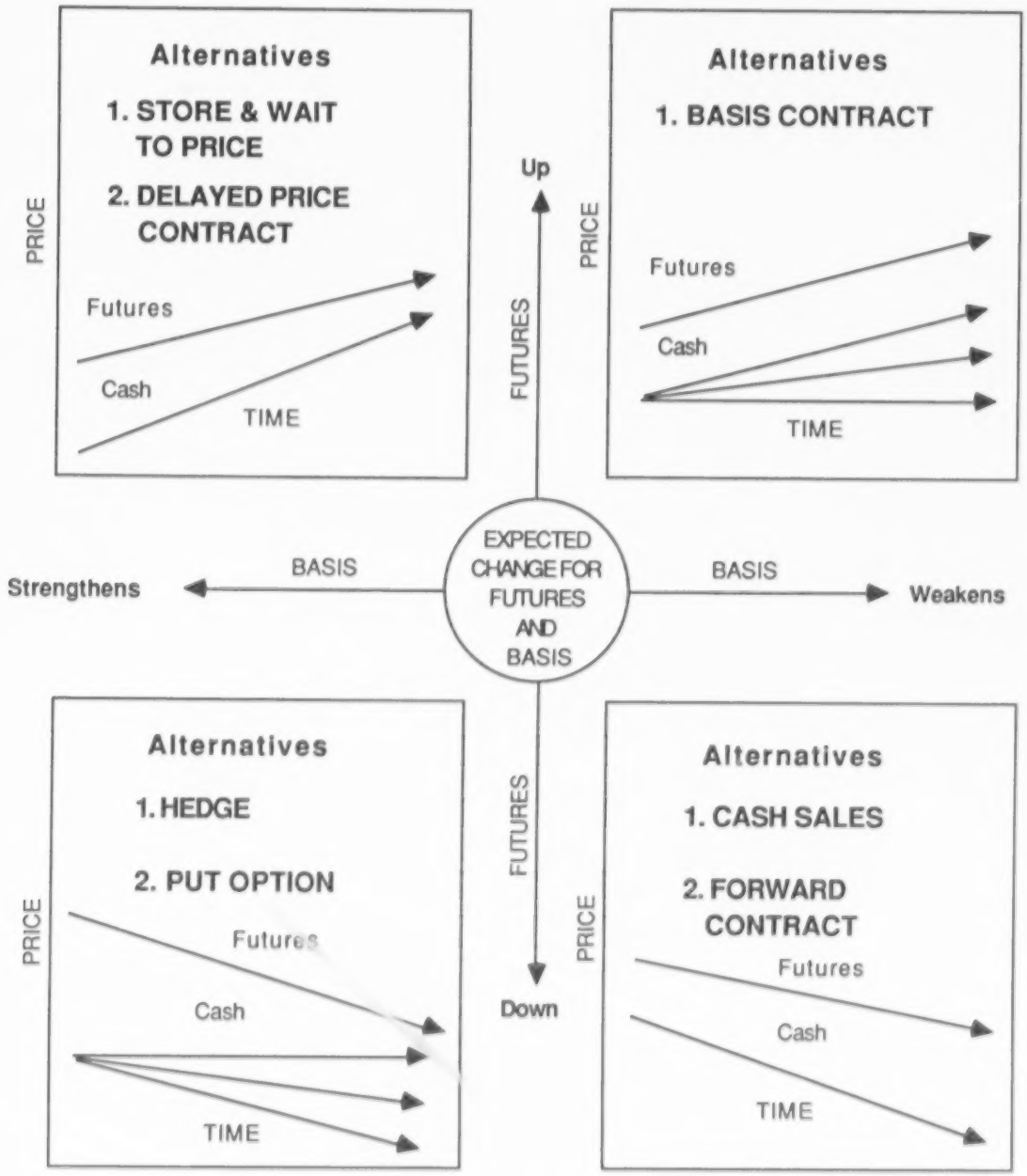
Situation

1. On the date you plan to enter into the basis contract, the following prices exist.

Cash price - local elevator	$3.00
Futures price	3.50
Basis	- $0.50

Grain Marketing in Ohio Suggested Teaching Materials, Department of Agricultural Economics and Rural Sociology, The Ohio State University, 1985, pages 6-6 and 6-30.
E. Dean Baldwin, *Understanding and Using Basis for Grains*, Department of Agricultural Economics and Rural Sociology, The Ohio State University, 1986

Figure 5-7
PRICING DECISION CHART ON CROPS[1]



[1] Government program alternatives omitted from discussion. These marketing alternatives would not be selected where the loan rate is above the cash price and the farmer elects to participate in the program.

Source: Dean Baldwin, Extension Economist, Grain Marketing, Department of Agricultural Economics and Rural Sociology, The Ohio State University

2. You believe the futures price will increase to $3.75 and the basis will weaken to -$0.75.

3. A basis contract is sold fixing the basis at -$0.50.

Example 1. Your forecast is correct at the time you sell your grain.

- Cash price $3.00 = futures price $3.75 + basis - $0.75.
- Your basis contract price is $3.25; (futures $3.75 + basis -$0.50 = cash price $3.25.) This is $0.25 over the current cash price.

Example 2. The futures price did not increase but remained the same at $3.50 and the basis weakened to -$0.75.

- Cash price $2.75 = futures price $3.50 + basis -$0.75.
- Your basis contract price is $3.00; (futures $3.50 + basis -$0.50 = cash price $3.00). In this case you misjudged the futures price change, but your basis estimate was correct. You sold your grain for $3.00, which was the original cash price and was $0.25 over the current cash price.

Example 3. The futures price increased to $3.75 as estimated, but the basis remained unchanged at -$0.50 which is the basis you contracted for.

- Cash price $3.50 = futures price $3.75 + basis -$0.50.
- Your basis contract price is $3.25; (futures $3.75 + basis -$0.50 = cash price $3.25). Since the basis did not weaken as you thought it would, you sold your grain at the same price as the current cash price. However, the protection was worth the effort and cost.

LOWER RIGHT QUADRANT - ***futures price decreases, basis weakens***

Refer to the lower right quadrant when you expect the basis to weaken and the futures price to decline. This situation should cause the cash price to decrease. Thus, the marketing alternative selected should protect you from a declining cash price. Two marketing alternatives are suggested to accomplish your objective.

- Sell cash grain
- Sell a forward contract

Situation

1. At the time you are deciding whether to sell your grain for cash or to sell a forward contract, the following prices exist.

Cash price	$3.00
Futures price	3.50
Basis	- $0.50

2. You believe the futures price will decline to $3.25 and/or the basis weaken to -$0.75.

3. You can either sell your grain for cash at $3.00 per bushel or sell a forward contract at $3.15 per bushel.

Example 1. Sell cash grain.

- You sell cash grain at $3.00 per bushel.
- You have no storage charges, so your net price is also $3.00 per bushel.

Example 2. Sell a forward contract.

- Forward contract is sold for $3.15 per bushel.
- Your price forecast proved to be correct at the termination of the forward contract. Cash price $2.50 = futures $3.25 + basis -$0.75.
- The gross price for your grain sold on the forward contract was $3.15, which is $0.65 over the current cash price ($3.15 - $2.50 = $0.65).
- If your storage costs were $0.25 per bushel, your net price would be $2.90 ($3.15-$0.25 = $2.90).

In these two examples, the better alternative would have been to sell cash grain. The net price for the forward contract was $2.90 while

the cash sale netted $3.00. The $3.00 cash sale minus the $2.90 net forward contract price equals $0.10 per bushel in favor of the cash sale.

LOWER LEFT QUADRANT - ***futures price decreases, basis strengthens***

Refer to the lower left quadrant when you expect the futures price to decrease and the basis to strengthen. When these two conditions exist, it is not possible to predict the change in the cash price. The expected strengthening of the basis indicates that a hedge might provide the desired price protection providing the expected strengthening in basis covers the storage and financing costs. Two marketing alternatives are suggested:

- Hedge in the futures market. This is accomplished by storing your grain and buying a futures contract. That means you have opposite positions in the two markets. You are long on cash grain and short on futures.
- Buy a put (sell) option. This gives you the right, but not the obligation, to go short in the futures market. If the price goes down, you either exercise or sell your option. If the price goes up, you let your option expire.

Situation

1. On the date you are making your marketing decision the following prices are quoted.

Cash price local elevator	$3.00
Near futures price	3.50
Local basis	- $0.50

2. You believe the futures price will decline to $3.25 and the basis will strengthen to -$0.25.

For the following hedging and put option examples, assume that your belief about price changes proved to be accurate or nearly so.

Example 1. Hedging

The hedging transactions would look like the table at the bottom of the page.

Cash price- local elevator	$3.00
Gain in futures	+ 0.25
Gross price	$3.25
Charge for broker fee and interest	- 0.03
Net price	$3.22

The strengthening of the basis enabled you to realize a net gain of $0.22 per bushel for your grain.

Example 2. Put option

The put option trading would look like the table at the top of the next page.

Cash price - local elevator	$3.00
Gain in option premium	+ 0.11
Trading costs	- 0.04
Net price	$3.07

Selling the put option resulted in a $0.07 net gain over the cash price. In this example the option resulted in a lower price increase than the hedging transactions. This is not necessarily the rule when comparing the two types of grain marketing alternatives. Different price movements would bring about different net prices for each operation.

Cash	Futures	Basis
On date when hedge placed and grain stored	Sell futures contracts	
Cash price $3.00	Futures price $3.50	- $0.50
Sell cash grain	Buy futures contracts	
Cash price $3.00	Futures price $3.25	- $0.25
Gain	+$0.25	+ 0.25

Date	Option	Underlying Futures	Premium	Basis
Grain stored	Buy put option			
Cash price $3.00	Strike price $3.50	$3.50	$0.15	- $0.50
Sell cash grain	Sell put option			
Cash price $3.00		Futures $3.25	$0.26 (in the money)	- $0.25
Gain			$0.11	+ $0.25

UPPER LEFT QUADRANT - ***futures price increases, basis strengthens***

Refer to the upper left quadrant when you expect the basis to strengthen and the futures price to increase. With this movement of the futures price and the basis, the cash price would be expected to increase. Thus, the selected marketing alternatives should take advantage of this expected change in price. Two marketing alternatives that should accomplish this goal are:

- Store grain and sell later.
- Sell through a delayed price contract.

Situation

1. At the time that you are deciding whether to store your grain for later sale or to sell it through a delayed price contract, the following price situation exists:

$3.00 price - local elevator	
Futures price	3.50
Local basis	- $0.50

2. You believe the futures price will increase and the basis will strengthen. At a later date your estimate proves correct and the price situation is as follows:

Cash price - local elevator	$3.50
Futures price increases to	3.75
Basis strengthens to	- $0.25

Example 1. Store grain and sell later.

You choose to store your grain and sell at a later date. Your net price will be the cash price on the day of sale minus your storage costs.

Cash price - local elevator	$3.50
Storage charges	- 0.25
Net price	$3.25

Example 2. Delayed price contract

Cash price - local elevator	$3.50
Elevator fee	- 0.30
Net price	$3.20

The two examples have very similar net prices. The difference occurs between the storage costs and the elevator fee for delayed pricing. These two costs are variable depending upon local conditions. Your grain is well sold no matter which alternative you choose.

Using Pricing Decision Chart

The pricing decision chart on crops (Figure 5-7) should prove to be a useful tool for you when you are choosing marketing alternatives for your grain. There may be times when marketing alternatives other than those suggested in the different quadrants should be considered. Your knowledge of futures prices and basis movements and factors influencing these movements will enable you to make intelligent estimates of grain price movements. Remember, no one is perfect when it comes to judging the future. Your estimate may be as good as the experts. It is wise to gather information and to take advice from others. However, always make your own decisions based upon your best judgment. It is your grain and your livelihood that are at stake.

No price forecast can be considered final. As you move through the different periods of the market decision-making calendar, new information will become available to you. Be sure to have your market news information sources identified and keep yourself up to date. Market information that is not current has little value. It must also be used in relationship to the current supply and demand situation.

Discipline yourself to follow your marketing strategies. Do not let critical action periods, such as placing or lifting a hedge, pass without taking appropriate action. Also, do not alter your strategy on the basis of a whim or idle talk. Make changes only when you have valid new information.

Recording Sales Transactions

To assist you in future years, keep a record of each of your sales transactions and indicate why you made the sale. This will enable you to profit from your past good and bad decisions. A sample record form is shown in Figure 5-8. The best marketing plan cannot *guarantee* that you will achieve your marketing goal. Analyzing your past sales transactions may reveal that sometimes a "good" decision based on information available at the time became a "bad" decision when the information changed over time. For example, based on the current outlook report, you predict that the price will increase. You decide to speculate on this by storing your grain for later sale. Three months later a new outlook report causes prices to decline. The result is a loss, but your decision was good when it was made. Forces beyond your knowledge and control caused the change.

DEVELOPING A WRITTEN MARKETING PLAN

We have covered the fundamental and the technical side of the market, identified the various marketing channels available to you, determined the cost of producing and storing grain, studied the most commonly used marketing alternatives, and determined the relationships between the cash and futures markets. It is now time to put this knowledge to work by preparing a marketing plan for disposing of your grain.

In working through the grain production and marketing process, you will identify the decisions to be made and the action to be taken. You will also identify the time when these decisions should be made and the actions implemented. To be meaningful and useful to you, these decisions and actions should be well organized in the order in which they will take place. Then your plan should be placed in writing. This will serve to guide you through the entire two-year marketing period. It will also serve as a guide in preparing future marketing plans.

The two-year marketing decision calendar may be used as a guide in organizing your written marketing plan. It identifies when the different phases of production take place and when different kinds of market information become available. A loose-leaf notebook with dividers can be used so that each section of the plan can be kept separate and easily referred to when needed.

Farm Records

You will need supporting information to refer to when preparing your marketing plan. This involves a large number of items, so a well organized filing system is needed. Without such a system important information can easily be put aside and overlooked when needed. Following are some information items that should be available.

- Vocational agriculture student occupational experience records
- Farmers - farm accounts

Among other things, these records should provide cost of production and storage information.

Cropping plan. These records should show the acres of each crop to be planted and their expected yield.

Grain price records. Maintain records showing cash and futures prices and the basis including the historic or normal basis. These records may be in tabular or graph form. If a computer is available, different marketing program software can be used in obtaining price information.

Figure 5-8 RECORD OF GRAIN SALES

Grain _____ Marketing period _____ Bushels to be sold _____

Production cost/bu _____ Break-even price _____ Target price _____

Date	Marketing Alternative	Place of Contract-Elevator, Broker	Bushels sold	Delivery month	Delivery date	Percent sold	Bushels remaining	Expected Net Price	Net Price Received	Reason for Making Sale

Market News Reports

Market news reports are available from public sources including U.S. Department of Agriculture, State Department of Agriculture, and Land Grant universities; private sources which consist of marketing news letters and pamphlets, and farm magazines that have marketing sections; computer software grain marketing programs; as well as radio and television grain market reports.

- Statistical reports on planting intentions, production, inventory and growing conditions for all commodities
- Situation and outlook reports for all commodities plus other agricultural economic information
- Foreign agriculture situation and outlook
- Domestic use, carryover, and export of grain
- Livestock on feed

Record of Grain Sales - A running record is kept of each grain sale transaction.

Marketing Plan Outline

Here is a suggested outline for preparing a grain marketing plan. The different sections in the plan might be separated by dividers in your notebook.

I Farm business and personal goals

A. Personal living needs and goals
B. Farm business cash flow needs

II Grain cropping plan

How much of each crop will be planted and what is the expected yield and total production?

Crop	Acres to Be Planted	Expected Yield bu/acre	Expected Production bu

III Production costs

Refer to business records to identify production costs. With this information, you can identify the following–

A. Factors:
1. The money required to produced the crop
2. Returns required to cover cost
3. Price required to break even or to make a profit
4. Whether or not to plant the crop

B. Possible production cost items:
1. Land rental or charge
2. Seed
3. Fertilizer
4. Herbicides
5. Insecticides
6. Tractor and machinery rental or use charge
7. Crop insurance
8. Custom hire machinery or service
9. Hired labor
10. Taxes
11. Interest

IV Storage and carrying charges

When grain is carried beyond harvest, it must be stored either on-farm or in commercial storage.

A. On-farm storage

1. Fixed costs
   a. Depreciation
   b. Maintenance
   c. Interest on capital investment
   d. Insurance on buildings and equipment
   e. Property taxes

2. Variable costs
   a. Insurance
   b. Loss of grain quality while in storage
   c. Loss of grain due to handling
   d. Cost of quality maintenance
   e. Interest value of stored grain
   f. Labor
   g. Transportation of grain to storage

B. Off-farm storage

Elevator storage charges are posted but are subject to change.

1. Regular storage rates
2. Warehouse receipt storage rates - extra charge
3. Service charges
4. Receiving and loading out charges

V Forecasting grain price trends

Study outlook and commodity situation reports, read grain marketing articles, and listen to radio and television reports. Information may also be available in computer software grain marketing programs.

Indicate the effect of the change in each fundamental market item on price trend for each crop raised.

CROP _____ DATE_____

Fundamental Market Item	Direction of Movement and Effect on Supply or Demand	Estimated Effect on Price Trend, Up or Down
Domestic Agriculture		
Planting intentions		
Acres planted		
Growing conditions		
Production estimates		
Crop production		
Domestic use		
Carryover		
Export		
Livestock on feed		
Other		
Foreign Agriculture		
Country _____		
Acres planted		
Production estimate		
Growing conditions		
Crop production		
Level of Economy		
Employment level		

(continued)

Fundamental Market Item	Direction of Movement and Effect on Supply or Demand	Estimated Effect on Price Trend, Up or Down
Disposable income		
Gross National Product		
Other		

Evaluate each item and predict price trend.

VI Collecting and recording grain price information

Daily price information is available from the *Wall Street Journal* and some other newspapers, radio and television reports, local elevators, brokerage houses, and computer reports. Futures and cash prices should be recorded and the basis determined. Over a period of several years such records will show the historic basis. Recording prices one day each week should be sufficient. Daily records might be desirable when marketing of grain is expected soon. This is the time that you might be interested in the technical side of the market.

The form on the next page (Figure 5-9) may be used for recording futures and cash prices and in determining the basis.

VII Preparing price forecast

Base your forecast on the fundamentals of the market, the basis, and the futures price. Study the historic basis in making the forecast.

At any given time there are four possible basis/futures price relationships (Figure 5-7).

Futures price up	Basis weakens
Futures price down	Basis weakens
Futures price down	Basis strengthens
Futures price up	Basis strengthens

Determine the combination you think most likely to happen and forecast the futures price and the basis. From this you can predict the cash price.

Cash price = futures price – basis

VIII Identifying the most appropriate marketing alternative(s) to use

A. With the use of the futures market and different kinds of cash grain contracts, grain can be priced—

1. before production
2. at delivery - cash sale
   a. from combine during harvest
   b. from storage
3. before delivery from storage
4. after delivery from storage

B. Determine time(s) to price grain.

PRICING ALTERNATIVES

Time of Pricing	Delivery of Grain	Marketing Alternative
Before harvest	Delivery at harvest	Forward price contract Hedge Put option
Harvest	Deliver from field	Cash sale
	Store for later delivery and pricing	Cash sale

(continued)

Figure 5-9 WEEKLY BASIS CHART[1]

Commodity _____

Month and Week	Closing Futures Price Futures Contract Month[2]								Local Cash Prices Location[3]			Basis Location[4]			

[1]This form may be used to keep your ongoing price and basis records.
[2]Enter the futures price for the nearby futures contract.
[3]For each selling location, grain elevator, enter the price bid for Week 1.
[4]Subtract the nearby futures from the local cash price and enter basis.

Time of Pricing	Delivery of Grain	Marketing Alternative
Harvest *(continued)*	Store and price for future delivery	Forward price Hedge (expect basis to strengthen) Put option
	Delivered but not priced	Basis contract Delayed price contract (basis is strong)
Grain stored but not priced	Delivered from storage Deliver and sell when hedge lifted	Cash sale Hedge Put option

C. Determine the amount of risk you can afford or are willing to take in pricing your grain.

1. Minimum speculation. Plan to sell at the average price offered. (This is usually above the average price received and so is not a bad plan. The risk is relatively low.)

2. Maximum speculation. Plan to sell at the highest price during the marketing season. (This opportunity to sell is available for only a short time during the marketing season. The risk is high.)

3. Select a pricing goal between the two extremes.

D. Determine amount of grain to sell during each marketing period during the two-year marketing season.

Marketing Period	Period of Time
1st (old crop)	Plans for planting to planting
2nd (old and new crop)	Planting to harvest
3rd (old and new crop)	Harvest to planting
4th (new crop)	Planting to harvest

1. For minimum speculation you might decide to market one fourth of your crop during each period. This is most likely to achieve an average price goal. It spreads the risk over the entire marketing season.

2. Use price trends and price forecasts to assist in timing sale of grain. (A strong basis at harvest discourages storage for later sale.) Attempt to sell actual grain when the basis is strong.

E. Select the marketing alternative(s) most likely to take advantage of your expected basis movement; (basis remains the same, strengthens or weakens).

1. A strong basis at harvest discourages storage.
2. Attempt to sell actual grain when basis is strong.
3. Grain storage is encouraged by weak basis.

F. Identify the costs of using the market alternative(s) chosen. The following are the kinds of costs involved. Each alternative will not have all of these costs.

1. Transportation
2. Interest
3. Storage
4. Drying
5. Insurance
6. Risk of grain condition
7. Brokerage fees
8. Margin and commissions
9. Premiums
10. Service charges

G. Determine the expected net cash price for each marketing alternative considered.

Net price = Gross price – Costs

IX Altering marketing plans as new information becomes available

A. Remember that a price forecast becomes obsolete when new information becomes available.

B. Be disciplined enough to follow your plan but flexible enough to change it when new information warrants it.

C. Do not follow your whims or idle talk by the uninformed.

D. Seek the advice of competent specialists: grain marketing Extension specialists, brokers, grain merchants, your teacher of vocational agriculture, and your county Extension agent. You may find that different specialists give conflicting advice. So always keep in mind that it is your grain and your responsibility to make the final decision.

X Keeping a record of all sales transactions

Record each transaction giving the marketing alternative used and the reason you chose this alternative. Use this record to analyze your marketing activities and to prepare future marketing plans.

In conclusion, Baughman* advises, "Keep in mind that you are making as much of a marketing decision when you decide to do *nothing* as you are when you decide to buy or sell."

*Clifford Baughman, Teacher of Vocational Agriculture, A. B. Graham High School, St Paris, Ohio.

GLOSSARY

Some of the terms defined in this glossary are not found in the text. They are included because you are likely to encounter them as you study marketing information, outlook reports, and grain marketing articles and texts. Terms that are used in the new options trading procedures are indicated by an asterisk.*

arbitrage buying of grain in either the cash or futures market, depending upon which is lower in price, and selling in either the cash or futures market, depending upon which is higher. This action tends to bring the two markets together.

arbitrator one who brings about an arbitrage action at the market

at the market (or **market order**) instruction to the broker to execute an order immediately at the current price at which the commodity is trading when the order enters the pit

* **at-the-money** option whose strike price is equal or approximately equal to the current market price of the underlying futures contract

bailment storage grain deposited by producers for regular storage, warehouse receipt storage, or grain bank storage that must be held by the warehouseman in like quantity and grade for delivery upon request

basis the difference between current cash price and the nearby futures contract price

basis, historic (or **normal**) record of the basis for a local grain market maintained over a period of years. Used to study the comparison of the basis of past years with what is happening in today's market.

basis quote the difference between the local cash grain market quote and the nearby futures market price. Usually stated as cents above or below the futures price.

basis strengthening (or **narrowing**) situation where cash prices at a local elevator are gaining on nearby futures. Indicates strong cash demand for grain at the local market.

basis weakening (or **widening**) situation where cash prices at a local elevator are losing on nearby futures. Indicates weak demand for grain at the local market.

bear a trader who expects lower prices

bearish a market view which looks toward lower prices

bear market a market with a decreasing price trend

bid an offer to buy a grain future or cash grain at a specific price subject to immediate acceptance unless otherwise stated

blending mixing of two or more lots of grain of different quality to form a grade that meets desired specifications

break quick drop in market price

* **break-even point** futures price at which a given option strategy is neither profitable nor unprofitable. For *call options* it is the strike price *plus* the premium. For *put options* it is the strike price *minus* the premium.

Glossary *(continued)*

broker a representative who is registered with a particular exchange and the Commodities Exchange Authority and is responsible for execution of a grain producer's purchase or sale order

bulge quick rise in market price

bull a trader who expects higher prices

bullish a market view which looks toward higher prices

bull market a market with an increasing price trend

* **buyer** (or **option holder**) purchaser of an option, either a call option or a put option. Option buyers receive the right, but not the obligation, to enter a futures market position.

C.A.F. (C & F) = *cost and freight* (usually to a port of exit). A trade term describing delivery provisions of a cash grain purchase or sale which includes in the quoted price the purchase price and freight charges

CBT = *Chicago Board of Trade*

C.E.A. = *Commodity Exchange Authority* governing body responsible for policing commodity trading on regulated exchanges and making sure that all rules and regulations are followed by individual traders and exchange member firms

CFTC = *Commodity Futures Trading Commission*

C.I.F. = *cost, insurance and freight* trade term describing a cash purchase or sale which includes these costs in the quoted price

CME = *Chicago Mercantile Exchange*

* **call option** option which gives the buyer the right to purchase ("go long" on) the underlying futures contract at the strike price on or before the expiration date

carrying charge market a market in which nearby-to-distant futures contracts are trading at successively higher prices and above the current cash offer. The increases cover all or part of the additional storage charges. A **full carrying charge** is when distant futures contracts exceed nearby contracts by the level calculated to cover all storage costs.

carryover the amount of grain in storage at the beginning of a crop year (sometimes called **carry-in**) or the grain in storage at the end of a crop year (sometimes called **carry-out**). Such grain is available for consumption in a later year.

cash commodities actual physical grain ownership. Referred to as *spot commodity* during a futures delivery month.

certificated stocks quantities of grain designated and certificated for delivery by the exchange under its grading and testing regulations at delivery points and/or warehouses specified and approved for delivery by the exchange

clearinghouse agency of the futures exchange that is responsible for matching purchases and sales, assuring proper conduct of delivery procedures, and maintaining adequate financing by member firms

close hour at which an exchange stops trading during a day or the price at which a grain is trading when time expires. This could be a range of prices if buyers bid a lower price than sellers are willing to accept as the market closes.

closing transaction - see ***liquidation***

coarse grains the feed grains - corn, barley, oats, grain sorghum, rye, millet

commission brokerage fee for entering and liquidating one contract of a commodity future. (Also see ***round turn commission***.) (*Example*: $50.00 for one 5,000-bushel contract trade)

commission house business entity which employs registered representatives (brokers) and which acts as agent for the customer in buying or selling cash or futures, and maintains records of customer transactions. The commission house also collects customers' margin deposits and disburses customer profits or collects customer losses based on trades executed at the customers' directions.

confirmation document sent by the clearing commission firm to its client when a futures transaction is conducted - either purchase or sale. Generally shows date of the trade, delivery month, price and quantity.

consignment lot or shipment of grain that is placed under the control of an agent or broker for sale or other disposition

contract (futures) the standardized unit (including size, quality, delivery points and delivery dates) of grain making up a single unit of trading on the major exchanges. Also referred to as a **lot** or a **car**.

contract grades a quality definition established by the exchange to represent the standard type of grain acceptable for delivery against a futures contract. Included in the specification is the premium or discount for delivery of a non-standard quality or type of grain.

crop year the 12-month period between the beginning of harvest of one crop and that of the following crop

Crop Years

Wheat	June 1 through May 31
Soybeans	September 1 through August 31
Corn	October 1 through September 30

day orders orders entered by a broker on the exchange which, if not executed, expire at the end of trading that day

day trade a trade which is entered and liquidated during the same trading session. The round turn commission is reduced and margin is not posted normally, although it may be required by the commission firm prior to entering the trade.

deliverable grades - see ***contract grades***

deliverable stocks - see ***certificated stocks***

delivery settlement of a futures contract by tender or receipt of the actual physical grain or a warehouse receipt covering a contract unit of grain

delivery month the month during which a futures contract expires and becomes subject to delivery

delivery notice notice in writing to a long futures contract holder that the offer to deliver grain is being made in provision with exchange rules

delivery points locations designated by the exchange as authorized for receiving grain in fulfillment of an expiring futures contract

delivery price settlement price designated by the clearinghouse as the final price received or paid in fulfillment of a grain contract

demurrage charge made by a transportation company to a shipper for failing to load or unload a transportation vehicle within the specified period of time

discretionary account futures account in which the customer agrees in writing to allow a broker to enter trades without prior consultation

electronic trading using electronic communication equipment to allow traders at different locations to exchange bids and offers and to enter into sales agreements

equilibrium price price at which buyers will take all the grain offered by the sellers

equity difference between the original price of purchase or sale and the current market price of a grain contract

* **exercise** action taken by the holder of a call if he/she wishes to sell the underlying futures contract

* **exercise price** - see ***strike price***

* **expiration date** last date on which the option may be exercised. Although options expire on a specified date during the month prior to the named month, an option on a November futures contract is referred to as a November option since its exercise would lead to the creation of a November futures position.

expiration of a contract final trading day in a futures contract; in grains, around the third week of the delivery month. Grain contracts exist about 18 months.

* **extrinsic value** - see ***time value***

F.A.Q. = *fair, average quality*

F.A.S. = *free alongside* trade term to describe delivery conditions which include handling and shipping charges to export vessel berth

F.O.B. = *free on board* trade term describing a purchase or sale which includes the cost of loading grain on a ship, rail car, barge or truck

feed grains grains used mainly to feed livestock: corn, barley, oats and grain sorghum

first notice day first day authorized and specified by the exchange on which notice of intention to deliver physical grain against a short futures position is permitted

flat price current price for cash grain

floor broker registered representative who is present on the trading floor of the exchange

food grains grains used mainly for human consumption: wheat, rye and rice

fundamental side of the market the physical supply-demand side of the market. Important fundamentals include amount of production, weather conditions, consumption levels, yields, economic indicators, and other factors affecting the economy.

futures contract specifying the date, location, grade and quantity of a grain to be delivered at a future date which is traded on an organized commodity exchange

* **futures contract** contract traded on a futures exchange for the delivery of a specified commodity at a future time. The contract specifies the item to be delivered and the terms and conditions of delivery.

* **futures price** the price of a particular futures contract that is determined by open competition between buyers and sellers on the trading floor of a commodity exchange

G.T.C. = *good till cancelled* orders entered by a broker on an exchange; the broker will keep them in effect until executed or cancelled. Also called **open order**.

grades - see ***contract grades***

grading certificate paper issued by an authorized inspector stating the quality of grain presented for inspection at the time of inspection

grantor - see ***seller***

heavy a market that does not have the ability to advance in price

* **hedge** buying or selling of offsetting positions in order to provide protection against an adverse change in price. A hedge may involve having positions in the cash market, the futures market or options.

hedging reducing the risk of owning grain in storage from market price changes by buying or selling an offsetting amount of futures contracts. A price covering production costs of growing grain may be locked in by selling futures contracts in an amount equal to expected production.

hedging plan written plan made before placing a hedge based upon one's interpretation of market conditions (fundamentals). It includes hedging objectives, outline of market fundamentals, date and level for pricing hedge, level for adding to hedge, and plans and date for liquidating hedge.

holder - see ***buyer***

initial margin margin deposit required by the exchange when a new futures trade is entered. See ***margin deposit***.

* **in-the-money** a *call* is in-the-money if its strike price is *below* the current price of the underlying futures contract (i.e., if the option has intrinsic value). A *put* is in-the-money if its strike price is *above* the current price of the underlying futures contract (i.e., if the option has intrinsic value).

* **intrinsic value** the dollar amount which would be realized if the option were to be exercised immediately. Also see ***in-the-money***.

inverted market local market in which the nearby futures contract and the current cash offer are trading above distant contracts. Usually indicates strong local demand for cash grain.

invisible supply grain not held in regularly inspected warehouses. Such grain could be in transit on ships, barges, railroads, or other uninspected localities.

KCBT = *Kansas City Board of Trade*

last trading day final day during which a futures contract may be traded on the exchange. Grain trading usually expires at noon on the final trading day and any contracts remaining open at the end of trading that day must be settled by delivery or receipt of physical grain or by agreement for cash settlement if delivery is not possible.

Glossary *(continued)*

life of contract period of time during which a futures contract is traded from the first trading day to the last trading day (usually about eleven months for grain)

limited order an order placed with the broker to which there is attached some restriction as to time or price for execution

liquidation cancellation of a future delivery obligation by the offsetting purchase or sale of the same futures contract

locals floor brokers who trade for their own accounts

long position which is established by purchase of a futures contract or an option (either a call or a put) if there is no offsetting position

lot the contract unit. Also referred to as a **contract** or **car**.

MGE = *Minneapolis Grain Exchange*

maintenance margin margin deposit required by the exchange to keep a futures trade in force, required when the initial margin has been depleted by adverse price movement. (Maintenance margin is often 20% to 50% lower than initial margin.)

margin in commodities, an amount of money deposited to insure performance of an obligation at a future date. Buyers of options do not post margin since their risk is limited to the option premium which is paid in cash when the option is purchased.

margin call notice that additional margin is required to keep the futures contract in force. Margin calls may result from a loss in the futures position or from increased exchange requirements due to higher price level or unusual market volatility. Investor's futures position will be liquidated if margin calls are not met promptly. Buyers of options are not subject to margin calls.

margin deposit "good faith" money deposited with the brokerage house and in turn deposited by the brokerage house with the futures exchange. The minimum margin is determined by the exchange and is usually lower for hedgers than for speculators.

margin to the market a reverse margin call. When a surplus occurs in a margin account, the investor may withdraw money from the account, reducing the balance to the minimum maintenance margin deposit requirement.

market order - see ***at the market***

market position place of the commodity in the futures market (such as "Long March soybean at $6.75" or "Short May corn at $1.92")

MidAm = *Mid-America Commodity Exchange*

NYCE = *New York Cotton Exchange*

• **naked writing** (or **uncovered writing**) writing a call or a put on a futures contract in which the writer has no opposite cash or futures market position

negotiable warehouse receipts legal federal or state documents issued by a warehousing firm which describes and guarantees the existence of a specified quantity (and sometimes grade) of grain in storage

offer offer to sell a grain future or cash grain at a specific price subject to immediate acceptance unless otherwise stated

offset - see ***liquidation***

old crop and new crop *old crop* - the most recent crop harvested; *new crop* - the crop to be harvested for the coming crop year

open interest total number of futures or options (puts and calls) contracts outstanding on a given commodity

open order - see ***G.T.C.***

opening designated hour of the day during which futures trading begins on the exchange floor. Major U.S. grain exchanges normally open at 9:30 a.m. Central Time. Also, the opening or first price at which a commodity trades on a given day.

* **opening transaction** purchase or sale which establishes a new position

option term sometimes used to refer to a grain futures month, though technically options are **puts** and **calls** which are not traded on regulated U.S. commodity exchanges.

* **out-of-the-money** put or call option which currently has no intrinsic value. That is, a *call* whose strike price is *above* the current futures price or a *put* whose strike price is *below* the current futures price.

P & S = *purchase and sale* statement. A document sent by the clearing commission firm to its client when a transaction in futures is liquidated. Generally shows dates of the trade, delivery month, price, quantity, profit or loss, commission, net trade profit or loss, and new account balance.

pit ring or designated area on the exchange floor where futures orders are executed

point price unit in which futures prices are expressed (usually eighths of cents per bushel for grain)

* **premium** the price of an option, not including related brokerage commission fees. The premium is the maximum amount of potential loss to which the option buyer may be subject.

price rally market prices move up

price reaction market prices move down

price recovery market prices move upward following a downward movement

privileges early form of agricultural options, no longer traded

production hedge short hedge placed prior to or during the growing season

* **put option** option which gives the buyer the right to sell ("go short" on) the underlying futures contract at the strike price on or before the expiration date

range difference between low price and high price of futures trading in a designated delivery month during the day, week, month or life of contract

receipt - see ***delivery***

resting order limited open order on the exchange floor which is either to sell above or to buy below the current futures price level

roll over a hedge liquidating an original hedge contract before its delivery month and at the same time buying or selling a more distinct futures contract to keep the hedged position

round turn commission brokerage fee for entering and liquidating one contract of a commodity future. The commission is assessed only when the trade is liquidated.

scalp a trade for small grains usually entered and liquidated during the day to take advantage of a daily price trend

* **seller** also known as **option writer** or **grantor**. The seller of an option is subject to a potential obligation if the buyer chooses to exercise the option.

short position created by the sale of a futures contract or option (either a call or a put) if there is no offsetting position

short hedge sale of futures to offset ownership of grain either growing in the field or held in storage to reduce the risk of price change

short the basis to sell cash grain which is hedged in futures at a favorable basis in the prospect that the basis will strengthen and provide a hedge profit

soft description of a gradually declining market

speculator a non-hedging trader. One who assumes risk positions with the hope of making a profit rather than protecting inventory or guaranteeing production costs.

spot commodity - see ***cash commodity***

spot price the value of cash grain at the current time

squeeze technical situation in which lack of delivery supplies or transportation forces shorts to cover their delivery obligation by offsetting the futures contract rather than making physical delivery

stop-loss order attempt to limit market risk by placing a liquidation order to be executed if the price moves violently to the designated level. However, in actual trading, the movement may be so fast and the market so thin that the actual price may be over or under the stop-loss order price due to inability to execute at the designated price. Also referred to as **stops** or **commission house stops.**

storage hedge short hedge placed following harvest with grain being stored on farm or in commercial storage

* **strike price** price at which the holder of a call (*put*) may choose to exercise his/her right to purchase (or sell) the underlying futures contract

technical correction price change against the trend due to such considerations as chart formations, volume, open interest or delivery conditions rather than for fundamental (supply-demand) reasons

technical side of the market the "people" aspect or psychological aspect of the market. The technical market considers trader reaction to the fundamentals of the market. This side charts price movements, considers open interest, and watches the volume of trading. Technical traders use past market reactions to predict current market movements.

terminal elevator bulk storage facility located at a major grain marketing center such as Chicago, Toledo or Cincinnati

terminal market major grain marketing center such as Chicago, Toledo or Cincinnati

thin term used to describe a futures market with low volume trading

* **time value** any amount by which an option premium exceeds the option's intrinsic value. If an option has no intrinsic value, its premium is entirely time value.

trading market market price pattern which is confined to a very narrow range between highs and lows for several weeks or months at a time

trending market market price pattern which has a well defined direction of price movement for several weeks or months with prices steadily moving into new high or low levels

* **underlying futures contract** the specific futures contract that may be bought or sold by the exercise of an option

visible supply grain stocks which can be accounted for such as elevator and processor inventory

volatile number an unstable market that is fluctuating quickly and unpredictably

volume total number of contracts traded during a day

warehouse receipts - see ***negotiable warehouse receipts***

writer - see ***seller***

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NOTES

AGDEX 110 840

MARKETING

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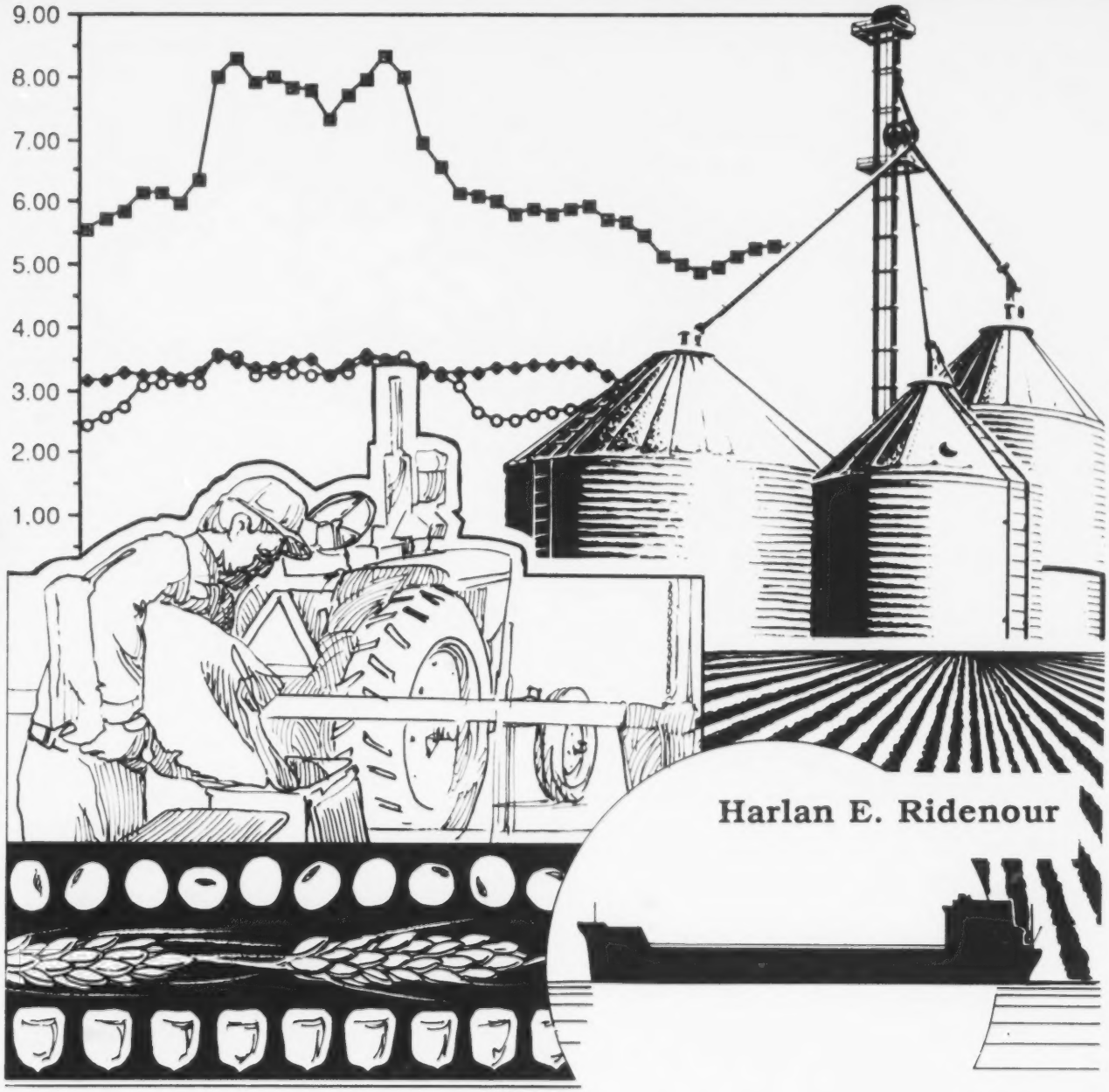

Harlan E. Ridenour

OHIO AGRICULTURAL EDUCATION CURRICULUM MATERIALS SERVICE

Agricultural Education Service
Ohio Department of Education

and

Department of Agricultural Education
The Ohio State University

MARKETING FARM GRAIN CROPS

Student Workbook

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PREFACE

This book, *Marketing Farm Grain Crops - Student Workbook*, is designed to guide you through the complex study of grain marketing. Various questions and problems have been grouped in a sequence that corresponds with *Marketing Farm Grain Crops - Student Manual.*

Your teacher will assist you in identifying the grain marketing questions and problems. In most cases you will be referred to the *Student Manual* and the visuals provided for you by your teacher. Supervised study will be followed by a discussion period. After this, you should be able to answer the questions and solve the problems in your workbook.

The final assignment is to prepare your grain marketing plan. This will enable you to use the grain marketing information you have worked so hard to obtain.

After completing your study of grain marketing, you should be able to market your grain more effectively.

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Chapter 1

FUNDAMENTALS OF GRAIN MARKETING

1. Marketing Functions

1a. What are the functions of marketing?

(1) _____

(2) _____

(3) _____

(4) _____

(5) _____

(6) _____

(7) _____

(8) _____

(9) _____

(10) _____

(11) _____

(12) _____

2. Marketing Routes for Grain

2a. What are the different market outlets available to farmers and what are the functions performed by each?

(1) _____

(2) _____

(3) _____

(4) _____

(5) _____

(6) _____

(7) _____

2b. What are the common carriers used in transporting grain?

(1) _____

_____

(2) _____

_____

(3) _____

_____

(4) _____

_____

(5) _____

_____

3. Definition of Marketing

3a. After considering marketing functions, marketing channels, and grain transportation methods, how would you define a market?

_____

_____

_____

_____

_____

_____

3b. Describe the grain markets familiar to you.

_____

_____

_____

_____

_____

_____

3c. What marketing channels do your corn, wheat, and soybeans pass through as they move from your farm to the consumer?

4. Reasons Farmers Produce Crops

4a. What is my goal in crop production?

4b. What factors determine a producer's profit on a particular crop?

5. Why Market Prices Vary

5a. What happens to the movement of grain prices throughout the year?

5b. What causes market prices to fluctuate?

(1) _____

_____

_____

(2) _____

_____

_____

6. Demand and Supply Factors for Grain and Soybeans

6a. In your own words, state the law of demand.

_____

_____

_____

_____

6b. Describe **elastic demand** and its effects on grain marketing.

_____

_____

_____

_____

6c. Describe **inelastic demand** and its effects on grain marketing.

_____

_____

_____

_____

7. Factors Affecting Demand for Grains and Soybeans

7a. What factors affect the demand for grain in the U.S.?

_____

_____

_____

_____

(1) *NEED FOR GRAIN IN THE U.S.*

7b. How is grain used in the U.S.?

1. _____

_____

2. _____

_____

3. _____

_____

7c. What is the current domestic use of grain?

corn _____ bu.

soybeans _____ bu.

wheat _____ bu.

(2) *EXPORT NEEDS*

7d. How do grain exports affect the demand for U.S. grain?

_____

_____

_____

_____

7e. How will increased exports affect U.S. grain prices?

7f. What are the current exports of U.S. grain?

corn _____ bu.

soybeans _____ bu.

wheat _____ bu.

7g. What is **carry-out grain?**

7h. How does carry-out grain affect grain prices?

(3) *USE OF GRAIN TO MEET HUMANITARIAN NEEDS*

7i. What are some humanitarian uses of food?

(4) *GENERAL LEVEL OF PROSPERITY*

7j. Why does the U.S. prosperity level affect the price of grain?

_____

_____

_____

_____

7k. What are some prosperity level indicators? What is the current condition of our prosperity?

		Date
consumer price index	_____	_____
disposable income	_____	_____
expenditures	_____	_____
unemployment rate	_____	_____

(5) *SUBSTITUTION OF ONE COMMODITY FOR ANOTHER*

7l. What influences consumers to substitute one product for another?

_____

_____

_____

_____

_____

_____

(6) *NEW USES FOR GRAIN PRODUCTS*

7m. What are some new grain and soybean uses that will increase the demand for these commodities?

_____

_____

_____

_____

_____

8. Product Supply

8a. In your own words, state the law of supply.

_____

_____

_____

_____

9. Factors Affecting the Supply of Grain and Soybeans

9a. What factors affect the supply of grain and soybeans?

_____

_____

_____

_____

(1) *TOTAL ACRES OF A CROP PLANTED AND RAISED*

9b. Using the crop information services available in your vocational agriculture classroom, determine the current estimated production of corn, wheat and soybeans. (Use government reports, commercial reports and computer printouts.)

Crop reporting service used _____

Date _____

Crop	Planting Intentions	Acres Planted	Acres Harvested
Corn			
Wheat			
Soybeans			

(2) *YIELD PER ACRE*

9c. Using crop information services available in your vocational agriculture classroom, record the weather conditions and the projected yield per acre of corn, wheat and soybeans.

Crop reporting service used _____

Date _____

Season and Crop	Weather Conditions	Projected Yield - Bu./Acre
PLANTING		
Corn		
Wheat		
Soybeans		
GROWING		
Corn		
Wheat		
Soybeans		
HARVEST		Actual Yield - Bu./Acre
Corn		
Wheat		
Soybeans		

(3) *CARRY-IN*

9d. What is meant by the term **carry-in** (or **carryover**)?

_____

_____

_____

_____

9e. What is the carry-in of corn, wheat, and soybeans for the current marketing year?

Crop reporting service used _____

Date _____

corn _____ bu.

wheat _____ bu.

soybeans _____ bu.

9f. What is the total supply of U.S. corn, wheat, and soybeans?

TOTAL U.S. PRODUCTION OF CORN, WHEAT, AND SOYBEANS

Crop	Acres Harvested	x	Yield, Bu./A.	+	Carry-In, Bu.	=	Total Supply, Bu
Corn	_____	x	_____	+	_____	=	_____
Wheat	_____	x	_____	+	_____	=	_____
Soybeans	_____	x	_____	+	_____	=	_____

(4) *WORLD PRODUCTION*

9g. What is the total U.S. and world production of food and feed grain and soybeans?

TOTAL U.S. AND WORLD GRAIN PRODUCTION

Crop	U.S.	Production in Other Countries	Total World Production
Food Grain			
Feed Grain			
Soybeans			

10. Influence of Foreign Corn, Wheat, and Soybean Production on U.S. Corn, Wheat, and Soybean Prices

10a. Why should U.S. farmers be concerned with grain and soybean production in other parts of the world?

_____

_____

_____

_____

_____

10b. How can crop growing conditions, soil fertility, and other production factors in foreign countries affect the total world grain supply?

_____

_____

_____

_____

_____

10c. What are the current growing conditions in other grain producing countries?

CROP GROWING CONDITIONS IN OTHER GRAIN- AND SOYBEAN-PRODUCING COUNTRIES

Market news service _____

Date _____

Crop	Country	Growing Conditions
Corn		
Wheat		
Soybeans		

10d. How might a drought in Brazil affect the supply and price of soybeans on the world market?

_____

_____

_____

_____

_____

10e. How do production costs affect the comparative price advantage of U.S. producers of grain and soybeans?

_____

_____

_____

_____

_____

11. Other Factors Affecting Grain and Soybean Prices

11a. Describe how the following factors affect the market and the current situations of the listed crops.

(1) *LARGE QUANTITIES OF GRAIN AT HARVEST*

(a) effect on the market:

_____

_____

_____

(b) current situation of: Date _____

corn _____

wheat _____

soybeans _____

(2) *STORAGE COSTS*

(a) effect on the market:

_____

_____

_____

(b) current situation of: Date _____

corn _____

wheat _____

soybeans _____

(3) *INTEREST CHARGES*

(a) effect on the market:

_____

_____

_____

(b) current situation of: Date _____

corn _____

wheat _____

soybeans _____

(4) *AVAILABLE TRANSPORTATION*

(a) effect on the market:

_____

_____

_____

(b) current situation: Date _____

corn _____

wheat _____

soybeans _____

(5) *AVAILABLE STORAGE*

(a) effect on the market:

_____

_____

_____

(b) current situation: Date _____

corn _____

wheat _____

soybeans _____

(6) *GOVERNMENT POLICIES*

(a) effect on the market:

_____

_____

_____

(b) current situation: Date _____

corn _____

wheat _____

soybeans _____

(7) *LACK OF INFORMATION*

11b. Why is it important for grain producers to be well informed about the market situation when dealing with the grain buyers?

11c. What market news sources do you depend upon at home and in your classroom?

WORKSHEET 2

Chapter 2

GRAIN DELIVERY, GRADING, AND STORAGE

1. How can storage of your grain and soybeans affect the price you receive for your crops?

_____

_____

_____

_____

_____

_____

2. What storage facilities are available to you for storing your grain and soybeans?

_____

_____

_____

_____

3. What are the various off-farm storage methods?

a. _____

_____

b. _____

_____

c. _____

_____

4. Storage Costs

4a. What two kinds of costs are involved in storing grain? Describe each.

(1) _____

_____

(2) _____

_____

4b. What are the fixed and variable costs of storing grain?

FIXED COSTS

(1) _____

(2) _____

(3) _____

(4) _____

(5) _____

VARIABLE COSTS

(1) _____

(2) _____

(3) _____

(4) _____

(5) _____

(6) _____

(7) _____

(8) _____

5. Riskbearing

5a. What are the risks of owning grain in storage?

(1) _____

(2) _____

(3) _____

(4) _____

(5) _____

(6) _____

(7) _____

(8) _____

(9) _____

6. On-farm Storage

6a. List the advantages and disadvantages of on-farm grain storage.

ADVANTAGES

(1) _____

(2) _____

(3) _____

(4) _____

(5) _____

(6) _____

DISADVANTAGES

(1) _____

(2) _____

(3) _____

(4) _____

(5) _____

7. Off-farm Storage

7a. What government certificates and regulations are posted in your grain handling facility? List the various certificates and notices you see displayed.

STATE

(1) _____

(2) _____

(3) _____

(4) _____

(5) _____

(6) _____

Do you find certificates to meet all state requirements? _____

FEDERAL (if federally licensed)

(1) _____

(2) _____

(3) _____

(4) _____

(5) _____

Do you find certificates to meet all federal requirements? _____

7b. The Ohio Department of Agriculture licenses grain dealers. How does this protect the grain producer? List the ways.

(1) _____

(2) _____

(3) _____

(4) _____

(5) _____

(6) _____

(7) _____

(8) _____

(9) _____

How does the Ohio Department of Agriculture insure that these safeguards are provided for producers?

7c. List methods available to you for checking the reliability of grain storage owners and managers.

PERSONAL CHECKS

GOVERNMENT CHECKS

State:

Federal:

8. Determining Storage Fees

8a. List the grain storage rates and storage conditions for your local elevator.

Grain Storage Rates and Conditions for Your Local Elevator

Elevator _____ Date _____

CORN

WHEAT

SOYBEANS

Warehouse receipt storage

Additional service charges (if any)

8b. The service and storage charges for warehouse receipt storage are given in the *Student Manual* in Figure 2-9, page 37.

Using these charges, determine 1) the per-bushel and 2) the entire-lot charges for storing 10,000 bushels of soybeans on October 15th and removing from storage on February 15th.

(Show your work in the space below.)

9. Grain Sampling and Testing

Answer the following questions concerning producers' rights and responsibilities concerning the sampling and testing of their grain.

PRODUCER CHOICES

9a. If a producer's grain prices are to be discounted due to test results, what choices does the producer have?

(1) _____

_____

(2) _____

_____

(3) _____

_____

PRODUCER RESPONSIBILITIES

9b. What are the producer's responsibilities concerning marketed grain quality and loading method?

(1) _____

_____

(2) _____

_____

9c. Why is it a good practice to know your test results before your grain is unloaded?

_____

_____

_____

10. Grain Grades and Standards

10a. What is the purpose of grading grain?

_____

_____

_____

_____

_____

_____

_____

_____

10b. What is the greatest cause of grain marketing discounts?

_____

_____

10c. What moisture levels have been established as standards above which discounts will be applied?

No. 2 yellow corn _____%

No. 2 soft red wheat _____%

No. 1 yellow soybeans _____%

10d. What are the two types of losses in weight when high moisture grain is dried down to the standard moisture content?

(1) _____

_____

(2) _____

_____

10e. Calculate the pounds shrinkage in the following situations: (use information from the *Student Manual*, Figure 2-20, page 46)

Weight of Grain (lb.)	% Moisture in Grain	% Moisture Desired	Shrink Factor	Pounds Shrinkage
1,000	25.5	15.0	_____	_____
16,500	26.0	15.0	_____	_____
7,500	18.0	13.5	_____	_____
12,720	21.5	13.5	_____	_____
142,850	16.0	13.0	_____	_____
6,230	13.5	13.0	_____	_____

10f. What factors in addition to moisture and dry matter loss can cause grain prices to be discounted?

(1) _____

_____

(2) _____

_____

(3) _____

_____

(4) _____

(continued)

Question 10f *(continued)*

(5) _____

_____

(6) _____

_____

10g. What is the official test weight per bushel for the following:

Grain	Official Weight	Minimum Weight
wheat	_____	_____
corn	_____	_____
soybeans	_____	_____

10h. *Corn Discounts Other than for Moisture* - Using information from the Corn Discount Sheet (*Student Manual*, Figure 2-22, page 49), determine the following discounts. Secure a discount sheet from your local elevator to compare to the one in Figure 2-22.

	Test Weight	Other	Total
1. 52.5 lb. test weight	_____	_____	_____
2. 54 lb. test weight	_____	_____	_____
3. 51 lb. test weight 8.4% damaged grain	_____	_____	_____
4. 49.5 lb. test weight	_____	_____	_____
5. 51.5% test weight Hot	_____	_____	_____
6. 53.5 lb. test weight 6% damaged grain	_____	_____	_____
7. 52.5 lb. test weight 3.5% foreign matter	_____	_____	_____
8. 55 lb. test weight 2.7% heat damage	_____	_____	_____
9. 51 lb. test weight Sour	_____	_____	_____
10. 56 lb. test weight Musty	_____	_____	_____

11. Determining Net Value of Grain

11a. *Determining Net Value of Corn* - The harvesting season has been cold and wet. You are harvesting your corn project late. Your last load to the elevator weighed 12,700 lb. The price of No. 2 corn was $2.27 per bushel. Using the Corn Discount Sheet (*Student Manual*, Figure 2-22, page 49), determine the net value of the load of corn.

Your corn tested 23.4% moisture.
Your corn graded as follows. Record the discounts.

		Discount	
Test weight	49.0 lb.	$ _____	
Damage	7.0%	$ _____	
Foreign matter	5.5%	$ _____	
Musty	✓	$ _____	
Total discount		$ _____	per bushel

Determine drying charges for a load of wet corn:

Bushels of wet corn	_____	bu.
Drying charge per wet bushel	$ _____	
Total drying charge	$ _____	

Determine bushels of dry No. 2 corn (15% moisture):

Shrinkage rate 23.4% moisture	_____	%
Pounds of shrinkage	_____	lb.
Pounds of dry corn	_____	lb.
Bushels of dry corn	_____	bu.

Figure the net value of load:

Net price (price less discounts)	$ _____
Net value of dry corn	$ _____
Net value of load (net value less drying charge)	$ _____

11b. *Determining Net Value of Soybeans* - You hauled a load of soybeans weighing 14,280 lb. to your elevator for sale. The quoted price for soybeans is $5.51 per bushel. Using the Soybean Discount Sheet (*Student Manual*, Figure 2-27, page 57), determine the net value of the load of soybeans.

Your soybeans tested 13.7% moisture.
Your soybeans graded as follows. Record the discounts.

		Discount
Test weight	53.5 lb.	$ _____
Damage	2.4%	$ _____
Heat	0%	$ _____
Splits	25%	$ _____
Other	0%	$ _____
Total discount		$ _____

Determine drying charge for load of soybeans:

Bushels of wet soybeans	_____	bu.
Drying charges per wet bushel	$ _____	
Total drying charge	$ _____	

Determine bushels of dry soybeans (13.0% moisture):

Shrinkage rate 13.7% moisture	_____	%
Pounds of shrinkage	_____	lb.
Pounds of dry soybeans	_____	lb.
Bushels of dry soybeans	_____	bu.

Figure the net value of load:

Net price (price less discounts)	$ _____
Net value of soybeans	$ _____
Net value of load (net value less drying charge)	$ _____

11c. *Determining Net Value of Wheat* - You hauled a load of wheat weighing 12,300 lb. to your local elevator for sale. The quoted price for wheat is $3.06 per bushel. Use the Wheat Discount Sheet (*Student Manual*, Figure 2-28, page 60) to determine the net value of the load of wheat.

Your wheat tested at 14.3% moisture.
Your wheat graded as follows. Record the discounts.

		Discount
Test weight	57.8 lb.	$ _____
Damage	4.2%	$ _____
Shrunken and broken kernels	5.8%	$ _____
Total discounts		$ _____

Determine drying charge for load of wheat:

Bushels of wet wheat	_____	bu.
Drying charge per wet bushel	$ _____	
Total drying charge	$ _____	

Determine bushels of dry wheat:

Shrinkage rate 14.3% moisture	_____	%
Pounds of shrinkage	_____	lb.
Bushels of dry wheat	_____	lb.

Net value of load:

Net price (price less discounts)	$ _____
Net value of wheat	$ _____
Net value of load (net value less drying charge)	$ _____

12. Keeping Discounts to a Minimum

12a. What practices can be used to keep discounts to a minimum?

PRODUCTION PRACTICES

(1) _____

_____

(2) _____

_____

(3) _____

_____

(4) _____

_____

(5) _____

_____

HARVESTING PRACTICES

(1) _____

_____

(2) _____

_____

(3) _____

_____

(4) _____

_____

OTHER PRACTICES

(1) _____

_____

(2) _____

_____

(3) _____

_____

13. Records of Sales Transactions

13a. What grain transaction records does the elevator make at the time of the cash grain sale? How can these records be used?

(1) _____

_____

(2) _____

_____

13b. What is the purpose of the scale ticket?

_____

_____

_____

_____

_____

13c. What information is required on the scale ticket?

(1) _____

_____

(2) _____

_____

(3) _____

_____

(4) _____

_____

(5) _____

_____

(6) _____

_____

(continued)

Question 13c *(continued)*

(7) _____

_____

(8) _____

_____

(9) _____

_____

(10) _____

_____

(11) _____

_____

(12) _____

_____

13d. What information is on the settlement sheet and how is it used?

_____

_____

_____

_____

_____

14. Methods of Off-farm Storage

14a. What methods of off-farm storage are available to farmers? List and briefly describe each method.

(1) _____

_____

(2) _____

_____

(3) _____

_____

(continued)

Question 14a *(continued)*

4) _____

_____

(5) _____

_____

15. Precautions to Take When Delivering Grain to an Elevator

15a. Depending upon the way you have sold your grain, what records of the transaction will the elevator provide?

(1) _____

_____

(2) _____

_____

(3) _____

_____

15b. What should you do with your grain sale transaction records after you receive them? Explain why.

_____

_____

_____

_____

Chapter 3

KINDS OF GRAIN MARKETS

1. What two basic kinds of grain markets are available to you to sell your grain?

   a. _____

   b. _____

2. At any given time, what determines the cash price bid for your grain on your local market?

   _____

   _____

   _____

   _____

3. Futures Market

3a. Describe a futures contract.

_____

_____

_____

_____

_____

_____

3b. What does it mean to be:

(1) long on the futures market?

_____

_____

(2) short on the futures market?

_____

_____

3c. What is the usual procedure for handling grain delivery in a futures market contract?

_____

_____

_____

_____

3d. Why is it desirable to establish a futures price for a commodity?

(1) _____

_____

(2) _____

_____

3e. Why should you consider using the futures market when marketing your grain?

_____

_____

_____

_____

3f. Why would you consider using the futures market when you can establish a price for your grain by entering into a contract with your local elevator?

(1) _____

_____

(2) _____

_____

(3) _____

_____

4. Futures Market Participants

4a. Describe the two groups of people who use the futures market.

(1) _____

_____

_____

(2) _____

_____

_____

4b. Identify the members of each group of futures market users.

(1) _____

a. _____

_____

b. _____

_____

c. _____

_____

d. _____

(2) _____

a. _____

_____

b. _____

_____

5. Reading the Futures Quotations

5a. Identify the following terms that appear in grain market quotations.

CBT _____

_____

KC _____

_____

MPLS _____

_____

open _____

_____

high _____

_____

low _____

_____

settle (or "close") _____

_____

change _____

_____

lifetime high and low _____

_____

1/4, 1/2, 3/4 _____

_____

open interest (open int) _____

_____

estimated volume (est vol) _____

_____

volume (+ day of week) _____

_____

(On ticker or computer quotations):

2722 _____

_____

2724 _____

_____

2726 _____

_____

6. Technical Price Analysis

6a. The grain market has a fundamental and a technical side. Briefly explain each side.

(1) Fundamental side of the market

_____

_____

_____

(2) Technical side of the market

_____

_____

_____

6b. When studying the market's technical side and reading grain market news reports, you will see references to bulls, bull markets, bears, and bear markets. Describe what these terms mean.

bear _____

_____

(continued)

Question 6b *(continued)*

bear market _____

_____

bull _____

_____

bull market _____

_____

7. Mechanics of Futures Trading

7a. In November you harvested and stored 6,000 bushels of corn on your farm. You decided to sell your corn in March, using the futures market to hedge the transaction. Outline the steps you followed to establish and end the hedge.

(1) _____

_____

_____

(2) _____

_____

_____

(3) _____

_____

_____

(4) _____

_____

_____

(5) _____

_____

_____

(continued)

Question 7a *(continued)*

(6) _____

_____

_____

7b. Define the grain marketing terms used in a hedging operation.

hedging _____

_____

broker _____

_____

contract _____

_____

margin _____

_____

margin calls _____

_____

round turn commission _____

_____

7c. Define the costs encountered when trading in the futures market.

broker's commission fee _____

_____

_____

margin deposit _____

_____

_____

margin call _____

_____

_____

(continued)

Question 7c *(continued)*

interest _____

_____

_____

7d. Using the hedging problem presented in question 7a on page 38, determine the required margin deposit and the interest charge in the following situation:

On November 15th, you hedged your store of corn by selling one 5,000-bushel contract of March corn futures. On this date, March corn futures were $1.97 per bushel. The margin requirement is 10% of the contract value.

On March 15th, you closed out your hedging position by buying one March corn futures contract.

What is your margin deposit and how much interest should be charged for the period of time the margin money is deposited? Assume the current rate of interest is 8%.

8. The Basis

8a. What is basis?

_____

_____

_____

8b. If the cash price of corn at your local elevator was $1.76, and the March futures price at Chicago was $2.01, what would the basis be on November 28?

_____

_____

_____

8c. Describe the cash basis.

8d. If the November 17th cash corn price is $1.87, and the December futures price is $2.09, what is the cash basis?

8e. What is the basis on futures other than the nearest futures month (present basis)?

8f. If the November 12th cash corn price is $1.78, and the May futures price is $2.16, what is the basis on the May futures?

9. Historic or Normal Basis

9a. Define the historic or normal basis.

If you are not using your own grain price records, the forms on pages 42 and 43 will help you get started. Use the form your teacher chooses.

9b. How is the historic or normal basis determined?

GRAIN PRICE RECORD

_____ Prices for _____ (month)

Cash Basis	Date		Cash Price	Futures Prices-Chicago Board of Trade			
		19 ___					
		19 ___					
	First Week	19 ___					
		19 ___					
		19 ___					
		19 ___					
		19 ___					
	Second Week	19 ___					
		19 ___					
		19 ___					
		19 ___					
		19 ___					
		19 ___					
	Third Week	19 ___					
		19 ___					
		19 ___					
		19 ___					
		19 ___					
	Fourth Week	19 ___					
		19 ___					
		19 ___					
		19 ___					

WEEKLY BASIS CHART[1]

Commodity _____

Month and Week	Closing Futures Price Futures Contract Month[2]								Local Cash Prices Location[3]			Basis Location[4]			

[1]This form may be used to keep your ongoing price and basis records.
[2]Enter the futures price for the nearby futures contract.
[3]For each selling location, grain elevator, enter the price bid for Week 1.
[4]Subtract the nearby futures from the local cash price and enter basis.

9c. The figures listed below show the basis for corn in the second week of November during the past five years. Using these figures, determine the historic or normal basis.

1983	- $0.05
1984	- $0.22
1985	- $0.26
1986	- $0.35
1987	- $0.12

10. Basis as a Relationship between Cash and Futures Prices

10a. Describe the cash and futures price relationships you see on the chart in Figure 3-15 on page 86 of the *Student Manual.*

10b. Why do the cash and futures prices fluctuate? (See Figure 3-15 in the *Student Manual.*)

10c. Study the chart shown in Figure 3-16 on page 86 of the *Student Manual.* Are the cash and futures prices shown on this chart?

10d. What does the horizontal straight line on this chart represent?

10e. Does this mean the July futures price is the same for the entire year?

10f. What does the fluctuating line on this chart show?

11. Running Basis

Study Figure 3-17 on page 87 of the *Student Manual*.

11a. What do the vertical lines on the chart represent?

12. Review of Basis Charting

12a. *July Corn Basis*: Study the chart in Figure 3-20 on page 88 of the *Student Manual*. What is the relationship of the basis for each of the four years to the average basis shown by the bold line on the chart?

13. Offering a Premium for Grain

13a. Refer to Figure 3-15 on page 86 of the *Student Manual*. What happened to the relationship between the cash price and the futures price of corn during the months of April and June?

13b. What happened to the basis during the two months mentioned in question 13a? (See Figure 3-16 on page 86 of the *Student Manual.*)

_____

_____

13c. What situation can produce a plus or inverted basis?

_____

_____

_____

13d. If your local elevator is bidding $2.04 for cash corn on January 12th, and the CBT March futures price for corn is $1.98, what is the cash basis?

_____

_____

_____

14. Carrying Charges for Grain Sold on the Futures Market

14a. The local cash price of grain is usually below the nearest CBT futures price. Why?

_____

_____

_____

14b. What are the costs included in the carrying charges for grain in storage?

(1) _____

(2) _____

(3) _____

(4) _____

(5) _____

(6) _____

14c. Why is there an increase in the basis spread as the marketing year advances from one futures delivery month to the next?

14d. If the spread in the basis declines from the December futures to the July futures, what does this signal to producers?

15. Basis and Local Transportation Costs

15a. As the marketing year advances, why do the cash price and the futures price of grain tend to come together?

15b. Except in unusual situations, why will the local elevator cash price never quite meet the futures price at the end of the futures contract?

15c. Why is it common in the grain trade to quote the basis rather than the actual cash price?

16. Interpreting Basis Patterns

16a. During the marketing year, the basis may improve (strengthen or narrow) or weaken (widen). Describe what happens to the basis when it is:

improving _____

_____

weakening _____

_____

16b. On October 5th the December corn futures price is $2.05 and the local cash price is $1.74. On November 15th the futures price is $2.06 and the cash price is $1.86. According to these figures, is the basis strengthening or weakening? By how much? (Show your work.)

16c. On October 5th the December corn futures price is $2.09 and the local cash price is $1.88. On November 15th the futures price is $2.07 and the cash price is $1.72. Is the basis strengthening or weakening? By how much? (Show your work.)

16d. On December 10th, the July corn futures price is $2.17 and the local cash price is $2.31. On January 5th, the July futures price is $2.26 and the cash price is $2.34. Is the basis strengthening or weakening? By how much? (Show your work.)

16e. On December 15th, the March futures price for corn is $2.26 and the local cash price is $1.98. On January 15th, the March futures price is $2.28 and cash price is $1.86. Is the basis strengthening or weakening? By how much? (Show your work.)

17. Using Historic or Normal Basis

The following problems will help you determine whether the current basis is strong or weak in relation to the historic basis.

17a. Describe the relationship of the current basis to the historic basis when the basis is:

strong: _____

_____

_____

weak: _____

_____

_____

17b. On November 15th your price records show that the historic (normal) basis for March corn is 32 under (–$0.32). On this same day the March futures price is $2.11 and the cash corn price is $1.70. Is the current basis strong or weak in relation to the historic basis? (Show your work.)

17c. On December 20th your price records show that the historic (normal) basis for March corn is 18 under (–$0.18). On this same day the cash corn price is $2.19 and the March futures price is $2.13. Is the current basis strong or weak in relation to the historic basis? (Show your work.)

17d. On January 15th your price records show that the historic (normal) basis for March corn is 36 under (–$0.36). On this same day the cash corn price is $1.87 and the March futures price is $2.03. Is the current basis strong or weak in relation to the historic basis? (Show your work.)

18. Factors Affecting Basis Strength

(Reference: *Student Manual*,pages 94-95.)

18a. Indicate with a check mark whether the following conditions would strengthen or weaken the basis.

	Strengthen	Weaken
(1) Grain buyers want more grain than farmers have available or are willing to sell.		
(2) Grain buyers do not have enough storage space to hold the grain farmers have to sell.		
(3) Poor harvesting conditions result in high-moisture grain at harvest.		
(4) There is a shortage of railroad hopper cars to transport grain from local elevators to the terminals.		
(5) The cost of building storage has increased from $1.50 to $1.80 per bushel.		
(6) Interest rates have decreased from 18% to 15%.		
(7) As the marketing year passes the harvesting season, the need for transportation and storage decreases.		
(8) Your grain is sold to an exporter located on a river where barges are normally used to ship the grain. However, the river freezes and the exporter must use the more costly method of shipping the grain in railroad cars.		

18b. What usually happens to the strength of the basis as the futures contract delivery month approaches? What are the reasons for this?

18c. List the sources of basis information available to you in your vocational agriculture department and at home.

18d. Explain how the worldwide grain market considered by the CBT in establishing prices is related by the basis to your local grain market prices.

19. Some Uses of Basis in Grain Marketing

19a. The strength of the basis (a strong basis or a weak basis) suggests a general rule of grain marketing. What is this general rule?

19b. When the basis is strong, what are grain buyers signaling to farmers? What are some conditions in the grain marketing channels that produce these signals?

19c. When the basis is weak, what are grain buyers signaling to farmers? What are some conditions in the grain marketing channels that produce these signals?

19d. Using the following information, estimate what a farmer would be charged for storing corn from November 15th to July.

Cash price, corn, November 15	$1.72
July corn futures, November 15	$2.29
Historic basis for July	- $0.25

(Show your work.)

Conclusion:

19e. Using the following information, estimate the price paid for soybeans in May.

May soybean futures close on November 1	$5.13
Historic May soybean basis in May	- $0.27

(Show your work.)

Conclusion:

19f. Using the following information, determine what basis the elevator is using on June 3rd when quoting a contract delivery price for corn to be delivered at harvest.

December corn futures close on June 3	$2.03
Contract price for harvest delivery	$1.62

(Show your work.)

Your price records show the historic basis for corn at harvest to be - $0.27. Is this a strong bid for the corn?

_____

_____

19g. Using the following information, compare the elevator's contract price offer for soybeans to be delivered at harvest with the potential price of soybeans at harvest.

November soybeans close on June 20	$6.17
Contract price offer for harvest delivery on June 20	$5.60
Historic November soybeans basis at harvest	- $0.47

(Show your work.)

Compare the solid contract price offer of $5.60 with the speculative potential price of $ _____ .

_____

_____

19h. Using the following information, determine whether basis improvement would cover the storage costs and make a profit for storing the grain.

Storage costs plus interest, November-May	$0.28
November 15 cash corn price	$2.12
November 15 May futures close	$2.76
Historic basis in May	- $0.25

(Show your work.)

Conclusion:

Chapter 4

MARKETING ALTERNATIVES

1. The grain marketing season can be divided into what periods?

_____

_____

_____

2. The grain marketing season can extend over how many months?

_____

_____

3. Grain Marketing Alternatives

3a. What are the three methods the producer can use to price his/her grain? (Exclude feeding grain to livestock and government programs.) For each method provide the time of price setting and delivery.)

(1) _____

_____

(2) _____

_____

(3) _____

_____

3b. What are the marketing alternatives for each of the three price-setting methods considered in this study?

(1) Price at delivery

a. _____

b. _____

(2) Forward pricing

a. _____

b. _____

c. _____

(3) Deferred pricing

a. _____

b. _____

4. Use of Contracts in Transferring Title of Grain

4a. List the five parts of a grain contract. Identify these parts on Visual 4-5, "Sample Grain Contract" from the *Teacher Guide* and other available sample contracts.

(1) _____

_____

(2) _____

_____

(3) _____

_____

(4) _____

_____

(5) _____

_____

4b. What grain dealer policies and procedures should be checked before signing a contract?

(1) _____

_____

(2) _____

_____

(3) _____

_____

(4) _____

_____

(5) _____

_____

4c. Two elevators in your area quote the same price for your grain, but the net price you would receive is different. Explain how this happens.

_____

_____

_____

5. Price at Delivery (at harvest or from storage)

5a. How can you determine whether or not a cash grain bid is good?

_____

_____

5b. Using the the following information, determine whether or not the cash bid for soybeans is good.

Nov. 5	Cash bid-soybeans	$4.92
Nov. 5	January soybean futures	$5.54
Nov. 5	Historic basis for January soybeans	- $0.39

(Show your work.)

Conclusion:

_____

_____

5c. Give three reasons why the elevator cash bid for soybeans might be below the expected price.

(1) _____

_____

(2) _____

_____

(3) _____

_____

5d. What are the advantages and disadvantages of pricing and delivering grain at harvest?

Advantages:

_____

_____

_____

_____

_____

Disadvantages:

_____

_____

_____

_____

_____

5e. What are the advantages and disadvantages of storing grain on the farm and then pricing and delivering later?

Advantages:

_____

_____

_____

_____

(continued)

Question 5e *(continued)*

Disadvantages:

5f. What are the advantages and disadvantages of storing grain in a commercial elevator, receiving a warehouse receipt, and pricing and selling later?

Advantages:

Disadvantages:

6. Forward Pricing

6a. What are the forward pricing grain marketing alternatives discussed in the *Student Manual*?

(1) _____

(2) _____

(3) _____

6b. During what periods of the marketing season can grain be forward priced? (See Figure 4-1 on page 101 of the *Student Manual* .)

7. Forward Contracting Grain

7a. What steps are involved in forward contracting grain?

(1)

(2)

(3)

(4)

7b. After studying samples of grain sales contracts, list the conditions of sale specified in the contracts.

7c. On June 15th you obtain a bid of $4.75 for soybeans to be delivered to your local elevator in March. The March futures price for soybeans is $5.05 on June 15th. Your records show the five-year average historic basis to be – 0.45 for March soybeans on June 15th. Is the bid of $4.75 a good or a bad bid? Why? (Show your work and conclusion.)

Conclusion:

_____

_____

7d. What are the advantages and disadvantages of forward contracting grain?

Advantages:

(1) _____

_____

(2) _____

_____

(3) _____

_____

(4) _____

_____

(5) _____

_____

(6) _____

_____

(7) _____

_____

(continued)

Question 7d *(continued)*

Disadvantages:

(1) _____

_____

(2) _____

_____

(3) _____

_____

8. Futures Market Contract - Hedging

8a. How do supply and demand factors affect the up-and-down movement of cash prices and futures prices?

_____

_____

_____

8b. Cash and futures markets tend to fluctuate up and down together. How does this movement make hedging possible?

_____

_____

_____

8c. What does a producer do when hedging?

_____

_____

_____

8d. What does it mean to be **long in the cash market**?

_____

_____

_____

8e. What does it mean to be **short in the futures market**?

_____

_____

_____

8f. You are long in the cash grain market and have an opposite or short position in the futures market. How will the following affect your chances for making a profit? Why?

(1) an increase in futures prices:

_____

_____

(2) a decrease in futures prices:

_____

_____

8g. Why would a grain farmer consider hedging grain?

(1) _____

(2) _____

9. Procedures for Hedging

9a. What steps should you take in determining whether or not to hedge?

(1) _____

_____

a. _____

b. _____

c. _____

d. _____

(2) _____

_____

(continued)

(3) _____

_____

(4) _____

_____

(5) _____

_____

(6) _____

_____

(7) _____

_____

9b. You planted 90 acres of corn and expect a yield of 140 bushels/acre for a total of 12,600 bushels. To determine whether or not to hedge your growing crop, you localize the futures price. Use the following information:

Sell two 5,000-bu. December futures contracts.

June 2	local cash corn price	$1.73
June 2	December corn futures	$2.11

Commission fee: $25.00 per 5,000-bu. contract
Margin requirement: 15% of contract value
Interest rate 10%

(Show your work.)

10. Establishing the Price of a Crop Before Harvest

10a. You establish a hedge for your growing crop, then your crop is sold and the hedge is lifted. What is the relation of the price you receive to the market price when:

(1) prices decline? _____

(2) prices increase? _____

10b. What are the steps in hedging before harvest?

(1) _____

(2) _____

(3) _____

10c. In the four hedging situations (pages 68-71), compare the net price received for corn as a result of hedging, with the cash price of corn on the day sold.

In each situation, two 5,000-bu. December corn futures contracts will be sold on May 28th. Cash corn will be sold and the hedge lifted on December 3rd, when two futures contracts are bought. The interest on the margin deposit and the commission fee is $0.03 per bushel for the time the hedge is in effect.

Determine the expected price for your corn by localizing the futures price.

(continued)

Situation 1. The cash price and the futures price decline while the basis remains the same.

May 28	Cash corn price	$1.78	Dec. 3	Cash corn price	$1.52
May 28	Dec. corn futures	$2.15	Dec. 3	Dec. corn futures	$1.89

Solution: (Show your work)

Cash Transactions	Futures Transactions	Basis

Comparison of net price, expected price, and cash price on December 3:

Situation 2. The cash price and the futures price decline and the basis strengthens (narrows).

May 28	Cash corn price	$1.78	Dec. 3	Cash corn price	$1.58
May 28	Dec. corn futures	$2.15	Dec. 3	Dec. corn futures	$1.86

Solution: (Show your work below)

Cash Transactions	Futures Transactions	Basis

Comparison of net price, expected price, and cash price on December 3:

Situation 3. The cash price and the futures price decline and the basis weakens (widens).

May 28	Cash corn price	$1.78	Dec. 3	Cash corn price	$1.62
May 28	Dec. corn futures	$2.15	Dec. 3	Dec. corn futures	$2.08

Solution: (Show your work below)

Cash Transactions	Futures Transactions	Basis

Comparison of net price, expected price, and cash price on December 3:

Situation 4. The cash price and the futures price increase and the basis weakens (widens).

May 28	Cash corn price	$1.78	Dec. 3	Cash corn price	$1.98
May 28	Dec. corn futures	$2.15	Dec. 3	Dec. corn futures	$2.50

Solution: (Show your work below)

Cash Transactions	Futures Transactions	Basis

Comparison of net price, expected price, and cash price on December 3:

11. Establishing the Price of Grain in Storage for Later Delivery

11a. In addition to the usual costs of hedging (commission fees and interest on margin), what additional costs must be considered when hedging stored grain?

11b. For the cost of storage to be recovered in hedging operations, what must happen to the basis? (See Figure 4-9 on page 114 of the *Student Manual* .)

11c. If the basis remains the same or weakens during the storage period, would storage be profitable?

11d. What are the steps in hedging stored grain?

(1)

(2)

(3)

(4)

11e. In the two following situations, compare the expected net soybean price (due to hedging) with the cash soybean price on the day the crop is sold. In each situation, two 5,000-bushel soybean futures contracts will be sold on November 1, and the hedge will be lifted on March 3 when two futures contracts are bought. The interest on margin and commission fee is $0.02 per bushel for the time the hedge is in effect.

On November 1 the cash price of soybeans is $5.72 and the March futures price is $6.13. Determine the expected net price for the soybeans. (Show your work.)

Situation 1. The cash and futures soybean prices decline while the basis improves.

Nov. 1	Cash price soybeans	$5.72	March 3	Cash price soybeans	$5.36
Nov. 1	March futures price	$6.13	March 3	March futures price	$5.43

Solution (show your work below):

Cash Transactions	Futures Transactions	Basis

Compare the net price, expected price, and cash price on March 3. Would it pay to hedge the soybeans in storage?

Situation 2. The cash price and the futures price increase while the basis weakens.

Nov. 1	Cash price soybeans	$5.72	March 3	Cash price soybeans	$5.97
Nov. 1	March soybean futures	$6.13	March 3	March soybean futures	$6.47

Solution: (Show your work below)

Cash Transactions	Futures Transactions	Basis

Compare the net price with the expected price and the cash price on March 3.

12. Advantages and Disadvantages of Hedging

12a. List the advantages of hedging.

(1) _____

_____

(2) _____

_____

(3) _____

_____

(4) _____

_____

(5) _____

_____

12b. List the disadvantages of hedging.

(1) _____

_____

(2) _____

_____

(3) _____

_____

(4) _____

_____

(5) _____

_____

(6) _____

_____

(continued)

Question 12b *(continued)*

(7) _____

_____

(8) _____

_____

13. Commodity Option Contract

13a. Define a commodity option contract.

_____

_____

_____

_____

_____

13b. Describe the buyers and sellers of options.

Buyers:

_____

_____

_____

Sellers:

_____

_____

_____

13c. What is the underlying commodity for an option contract?

_____

_____

13d. Describe the two types of commodity options and the kind of farmer that uses each.

(1) _____

_____

(2) _____

_____

13e. Define the term **premium**. Who pays the premium? How is the premium determined?

_____

_____

_____

_____

_____

13f. Look at the computer printout in Figure 4-12 on page 119 of the *Student Manual*. What premium would a soybean farmer pay for a July put option with a $5.25 strike price, for 5,000 bushels of soybeans purchased at the closed price?

_____

_____

13g. Describe the break-even point and how it is determined.

_____

_____

_____

13h. What would the break-even point be for the example given in question 13f?

_____

_____

_____

13i. What are the three ways to terminate an option contract?

(1) _____

_____

(2) _____

_____

(3) _____

_____

13j. Describe the position you are in when you exercise an option. What additional expenses would you have?

_____

_____

_____

13k. Describe the position you are in and the costs involved when you let your option expire. Under what conditions would you let your option expire?

_____

_____

_____

13l. What do you do when you liquidate or close out your option?

_____

_____

_____

14. Value of an Option

14a. Define the following three terms in relation to the value of an option:

(1) *in the money:* _____

_____

(continued)

Question 14a *(continued)*

(2) *at the money:* _____

_____

(3) *out of the money:* _____

_____

14b. Would the following August soybean option with a strike price of $5.30 be in the money, out of the money, or at the money when the future price is:

$5.45 _____

_____

$5.20 _____

_____

$5.30 _____

_____

14c. Explain why an option can have time value (extrinsic value) even if it is at the money or out of the money.

_____

_____

15. Procedures for Using Grain Option Market

15a. What steps should you take when considering purchasing options?

(1) _____

_____

a. _____

b. _____

c. _____

d. _____

(2) _____

_____

(continued)

Question 15a *(continued)*

(3) _____

_____

(4) _____

_____

(5) _____

_____

15b. What are the steps in using put options?

(1) _____

_____

(2) _____

_____

a. _____

_____

_____

b. _____

_____

_____

_____

15c. On December 1 you harvested and stored 6,000 bushels of corn on your farm. Using the following market information, localize your strike price to obtain your minimum selling price if a put option was purchased.

On December 1

6,000 bu. corn in on-farm storage

Strike price	$2.00
Premium	$0.14
March corn futures	$1.97
Cash price	$1.78
Historic basis	$0.16

Localize the strike price to obtain minimum selling price. (Show your work on next page.)

(Show your work for question 15c in this space.)

In the following two examples, a March put option of 5,000 bushels is to be purchased by the producer. The December 1 market information in question 15c is the same for each example. However, the market information on February 15 is different to illustrate how different price combinations can change the outcome of purchasing an option.

Put option example 1. Price protection with declining cash and futures prices - strengthening basis.

On February 15

Cash price	$1.65
March futures	$1.82
Premium	$0.22 (in the money)
Trading cost	$0.03

Determine net price. (Show your work and conclusion below)

Date	Option	Underlying Futures	Premium	Basis

Determine net price:

Conclusion:

Put option example 2. Price protection with cash and futures prices increasing and the basis strengthening.

On February 15

Cash price	$1.92
March futures	$2.06
Premium	$0.00 (out of the money)
Trading costs	$0.03

Determine the net price. (Show your work and conclusion below)

Date	Option	Underlying Futures	Premium	Basis

Determine net price:

Conclusion: _____

16. How Much Price Insurance Should Be Purchased?

16a. How much price protection can you afford to purchase? Is more price protection always better?

Each situation is unique and should be determined on its own merits. In the following situation, what strike price for corn would you recommend purchasing?

Strike price	$1.90	$2.00	$2.10
Deductions			
Historic basis	$0.16	$0.16	$0.16
Premium	$0.14	$0.19	$0.26
Broker fee	$0.01	$0.01	$0.01
Interest on premium	$0.02	$0.03	$0.05
Total deductions			
Minimum selling price	$ _____	$ _____	$ _____

Conclusion: _____

17. Advantages and Disadvantages of Purchasing Commodity Options

17a. What are the advantages of purchasing commodity options?

(1) _____

(2) _____

(3) _____

(4) _____

(5) _____

(continued)

Question 17a *(continued)*

(6) _____

_____

(7) _____

_____

17b. What are the disadvantages of purchasing commodity options?

(1) _____

_____

(2) _____

_____

(3) _____

_____

(4) _____

_____

(5) _____

_____

(6) _____

_____

17c. In May you purchase options to cover 25,000 bushels of soybeans at a premium of $0.38 per bushel. If your production fell to 19,000 bushels, what would your per-bushel premium be? (Show your work.)

18. Deferred Pricing

18a. When does the title to grain sold under a delayed price contract transfer from the producer to the grain buyer?

_____

_____

18b. What is the purpose of selling grain under a delayed price contract?

_____

_____

_____

18c. What are the steps in selling grain under a delayed price contract?

(1) _____

_____

(2) _____

_____

(3) _____

_____

(4) _____

_____

a. _____

_____

b. _____

_____

c. _____

_____

18d. Identify the conditions specified in the contract shown in Figure 4-15 on page 127 of the *Student Manual.*

18e. Obtain copies of other delayed price contracts from local grain buyers and compare the conditions specified in each of the contracts. From the seller's standpoint, which contract has the most favorable service charges?

18f. In the period between grain delivery and pricing, what type of price movement prediction on the grain market would cause you to consider delayed pricing of your grain?

18g. When using a delayed pricing agreement, what protection do you have against:

- financial failure of the dealer *or*
- accidental destruction of the grain after the dealer receives title, but before you receive payment?

(Review "Grain Dealer Licensing" described in the *Student Manual,* Chapter 2.)

19. Delayed Pricing Exercise

19a. On December 15 you have 20,000 bushels of corn in storage on your farm. You study the market news and predict that the basis will strengthen to – 0.17 as both cash and futures prices advance. What is the local basis?

December 15	
Cash corn price	$1.82
March futures	– $2.12
Local basis	$ _____

You sign a delayed price contract with your local grain dealer. You are to price the grain by March 10. The service charge will be $0.26 per bushel.

Situation 1. On March 10 your prediction proves to be correct. Now what is the local basis?

Cash corn price	$2.27
March futures	– $2.44
Local basis	$_____

What would your transaction be on March 10? (Show your work.)

Conclusion: _____

_____

_____

_____

Situation 2. On March 10 the basis strengthened less than you predicted, even though the cash and futures prices advanced.

Cash price	$2.04
March futures	$2.28
Basis	$_____

What would your transaction be on March 10? (Show your work.)

Conclusion: _____

_____

_____

Situation 3. On March 10 the basis weakened, while the cash and futures prices declined.

Cash price	$1.79
March futures	$2.11
Local basis	$_____

What would your transaction be on March 10? (Show your work.)

Conclusion: _____

_____

_____

19b. When grain buyers enter into a delayed pricing agreement with a producer, how do they protect themselves against unfavorable price changes?

_____

_____

_____

19c. You are deciding whether to place your grain in commercial storage or to enter into a delayed pricing agreement. What costs should you compare?

_____

_____

_____

_____

20. Advantages and Disadvantages of Delayed Grain Pricing

20a. List the advantages of delayed grain pricing.

(1) _____

_____

(2) _____

_____

(3) _____

_____

(4) _____

_____

(5) _____

_____

20b. List the disadvantages of delayed grain pricing.

(1) _____

_____

(2) _____

_____

(3) _____

_____

(4) _____

_____

21. Basis Contract

21a. When entering a basis contract with your local elevator, what will you be establishing for the time specified in your contract to price your grain?

_____

_____

21b. What are the steps in using the basis contract?

(1) _____

_____

(2) _____

_____

(3) _____

_____

(4) _____

_____

(Study Figure 4-16 on pages 129 and 130 of the *Student Manual* and obtain copies of basis contracts used by your local grain dealers.)

21c. What specified conditions should you look for in a basis contract?

(1) _____

(2) _____

(3) _____

(4) _____

(5) _____

(6) _____

21d. Your grain is being marketed with a basis contract. On the date you price your grain, how is the net price determined?

_____

_____

_____

21e. In relation to futures price fluctuations and the strengthening or weakening of the basis, what kind of price prediction would cause you to enter into a basis contract?

_____

_____

_____

21f. Before entering into a basis contract, what information do you need when making your market predictions (in addition to what you can obtain from market news and outlook reports)?

_____

_____

_____

_____

22. Determining the Net Price to Be Paid for Grain Marketed under a Basis Contract

Situation:

October 15 - You enter into a basis contract with your local elevator to market your soybeans.

Local cash price for soybeans	$5.01
March soybean futures	$6.22
Local basis	$_____

You agree to price your soybeans during February based on the March soybean futures price. The local historic basis for March soybean futures during February is -0.32. On the day in February you decide to price your soybeans, the basis established in your contract is 22 under the March soybean futures price.

NET PRICE EXAMPLE 1

February 10 - You decide to price your soybeans that are under the basis contract. Determine the net price you will receive when the following prices prevail:

Local cash price	$5.98
March soybean futures	$6.48
Local basis	$_____

(Show your work.)

Conclusion: _____

_____

_____

_____

NET PRICE EXAMPLE 2

February 10 - You decide to price your soybeans that are under the basis contract. Determine the net price you will receive when the following prices prevail:

Local cash price	$5.06
March soybean futures	$5.19
Local basis	$_____

(Show your work.)

Conclusion: _____

_____

_____

23. Advantages and Disadvantages of Entering into a Basis Contract

23a. List the advantages of entering into a basis contract.

(1) _____

_____

(2) _____

_____

(3) _____

_____

(4) _____

_____

23b. List the disadvantages of entering into a basis contract.

(1) _____

_____

(continued)

Question 23b *(continued)*

(2) _____

_____

(3) _____

_____

(4) _____

_____

(5) _____

_____

24. Government Programs

24a. In general, what are the advantages and disadvantages of taking part in government programs?

Advantages:

(1) _____

_____

(2) _____

_____

(3) _____

_____

(4) _____

_____

Disadvantages:

(1) _____

_____

(2) _____

_____

(3) _____

_____

Chapter 5

DEVELOPING A GRAIN PRODUCTION AND MARKETING PLAN

1. Pricing Your Grain

1a. Is it realistic to establish a goal of selling your grain at the highest price offered during the marketing year? Why or why not?

1b. At what price range is most corn marketed?

1c. If you sold your corn at $2.80 ($0.13 above the average price) instead of at $2.45 (in the low 1/3 of the range), how much more would you receive per bushel?

1d. If you raised 200 acres of corn yielding 120 bushels per acre, how much would your income increase if you sold your corn at the higher price? (Use price in question 1c.)

1e. At what price range will you aim to sell your grain?

1f. Do you plan to sell your grain all at one time or portions of your grain at different times of the marketing season? Why?

_____

_____

_____

1g. What should you do to establish realistic grain marketing goals?

(1) _____

_____

(2) _____

_____

(3) _____

_____

(4) _____

_____

(5) _____

_____

(6) _____

_____

(7) _____

_____

(8) _____

_____

(9) _____

_____

1h. What is meant by developing a grain marketing plan that will help you meet the cash flow needs of your farm business?

2. Production Costs as a Function of Marketing

2a. What information will you need to determine whether the price quoted for your grain will enable you to make a profit?

2b. How can farmers and vocational agriculture students determine their production costs?

3. Using Market Fundamentals

3a. How can you use knowledge about the fundamentals of marketing to predict grain price trends?

Questions 3b, 3c, and 3d are located on pages 99 through 101.

3e. In addition to the fundamentals of the market, what other information can you use to predict grain price trends?

3f. Using the information developed in items 3b, 3c, and 3d concerning the effect of fundamental forces on grain prices, make your prediction of the trend of market prices from their present level.

3g. Compare your prediction of market price trends with the forecasts of experts quoted in market news services.

3b. There are fundamental forces in the market that affect the **demand** for a given grain. Study current market information and identify the nature of each fundamental force affecting demand. Indicate its probable influence on price. Choose the grain(s) that you want to study.

FUNDAMENTAL FORCES AFFECTING DEMAND FOR GRAIN

Fundamental Force Affecting Demand	Current Situation	Influence on Price (increase or decrease)
1. U.S. population trends		
2. Domestic grain use		
3. Livestock on feed		
4. Industrial grain use		
5. Grain export		
6. Food for humanitarian needs		
7. General level of prosperity		
a. employment level		
b. disposable income		
c. consumer prices		
8. Product promotion		
9. Product substitution		
10. Discovery of industrial use for grain		
11. Other		

Overall, how do these fundamental forces of demand affect the price of grain?

3c. There are fundamental forces in the market that affect the **supply** of a given grain. Study current market information and identify the nature of each fundamental force affecting supply. Indicate its probable influence on price.

FUNDAMENTAL FORCES AFFECTING SUPPLY OF GRAIN

Fundamental Force Affecting Supply	Current Situation	Influence on Price (Increase or decrease)
1. Total acres of crop planted		
a. Intended acres to plant		
b. Acres planted		
2. Carryover of grain stocks		
3. Total U.S. production		
a. yield per acre		
b. acres harvested		
4. Non U.S. world production		
a. country _____		
acres planted		
growing conditions		
production estimate		
crop production		
	(continued)	

FUNDAMENTAL FORCES AFFECTING SUPPLY OF GRAIN
(continued)

Fundamental Force Affecting Supply	Current Situation	Influence on Price (Increase or decrease)
(continued)		
b. country		
_____		
acres planted		
growing conditions		
production estimate		
crop production		
a. country		
_____		
acres planted		
growing conditions		
production estimate		
crop production		
5. Other		

Overall, how do these fundamental forces of supply affect the price of grain?

3d. There are **other fundamental forces** in the market that affect the price of grain. Study current market information and identify the nature of each fundamental force other than those for supply and demand. Indicate its probable influence on price.

OTHER FUNDAMENTAL FORCES AFFECTING THE GRAIN MARKET

Fundamental Forces other than Supply and Demand	Current Situation	Influence on Price (Increase or decrease
1. Cost of storage		
a. amount of grain stock needing storage		
b. amount of available storage		
2. Interest charges		
3. Transportation costs		
• supply of available transportation		
4. Government policies		
a. affect on production		
b. release of reserve stocks		
c. subsidy payments		
d. favorable trade agreements		
5. Available market information		
a. poor information		
b. good information		

Overall, how do the other fundamental forces affect the price of grain?

4. Determining Cash Price from Futures Price and Basis

Situation: In November you are predicting your expected price for soybeans in March. The November local cash price for soybeans is $5.87 and the March soybean futures price is $6.34. You predict that the March soybean futures price will be $6.50 in March and that the basis will strengthen to – 0.35.

4a. What is the local basis in November?

_____

_____

_____

4b. What will the predicted cash price be in March?

_____

_____

_____

5. Effect of Futures Price and Basis on Cash Price

5a. As you make your futures price estimate, the futures price will increase, decrease, or remain unchanged. As you estimate the basis, it will strengthen, weaken, or remain unchanged. What are the three cash price outcomes resulting from the possible combinations of futures price and basis estimates?

(1) _____

(2) _____

(3) _____

5b. Under what estimated futures price and basis movements will the cash price **increase?**

(1) _____

(2) _____

5c. Under what estimated futures price and basis movements will the cash price **decrease?**

(1) _____

(2) _____

5d. Under what estimated futures price and basis movements will the cash price **remain unchanged?**

(1) _____

(2) _____

(3) _____

5e. In each of the following situations:

(1) Determine the cash price outcome.

(2) Indicate the futures price and basis movements that caused the cash price outcome.

Situation 1. Soybeans

November		March	
soybean cash price	$5.32	predicted cash price	$_____
March soybean futures	$5.52	March futures	$5.72
local basis	$_____	local basis	- $0.40

(1) _____

(2) _____

Situation 2. Corn

October		March	
corn cash price	$1.82	predicted cash price	$_____
March corn futures	$2.05	March futures	$1.92
local basis	$_____	local basis	- $0.23

(1) _____

(2) _____

Situation 3. Wheat

June		September	
wheat cash price	$2.98	predicted cash price	$_____
September wheat futures	3.27	September futures	$3.27
local basis	$_____	local basis	- $0.18

(1) _____

(2) _____

Situation 4. Wheat

November		July	
wheat cash price	$3.24	predicted cash price	$_____
July wheat futures	$3.40	July futures	$3.40
local basis	$_____	local basis	- $0.27

(1) _____

(2) _____

Situation 5. Soybeans

May		September	
soybean cash price	$6.02	predicted cash price	$_____
September soybean futures	$6.53	September futures price	$6.27
local basis	$_____	local basis	- $0.25

(1) _____

(2) _____

Situation 6. Corn

April		September	
corn cash price	$1.85	predicted cash price	$_____
September corn futures	$2.07	September futures price	$2.28
local basis	$_____	local basis	- $0.22

(1) _____

(2) _____

6. Evaluating Production and Marketing Strategies

6a. What two major periods of risk do you have during the grain marketing season?

(1) _____

(2) _____

7. Production Decisions

7a. One of the most important considerations when making crop production decisions is making a profit. After you have predicted the net price you expect to receive and compared it with your production costs, what are the possible outcomes concerning making a profit?

(1) _____

(2) _____

(3) _____

7b. After you have evaluated the prospects of profits that can be made with different crops, what possible results must you consider?

(1) _____

(2) _____

(3) _____

(4) _____

(5) _____

From this information you will decide:

(1) _____

(2) _____

(3) _____

8. Marketing Decisions

8a. What are the two major factors influencing grain marketing decisions?

(1) _____

(2) _____

8b. The grain marketing decision calendar can extend over a two-year period. Grain supply is influenced by the amount of both the old crop and the new crop.

What are the **four periods** into which the two-year marketing calendar is divided? Which crop or crops (old or new) dominate the market during each period?

(1) _____

_____

(2) _____

_____

(3) _____

_____

(4) _____

_____

8c. **Situation**: You are going to raise either soybeans or wheat. Construct a marketing calendar for one of these crops, using Figure 5-6, pages 146-148 of the *Student Manual* as a guide.

(1) _____

_____

(2) _____

_____

(3) _____

_____

(4) _____

_____

9. Making Pricing Decisions

In making marketing decisions, the expected change in basis must be estimated.

9a. What are the reasons for estimating basis changes when making marketing decisions?

(1) _____

_____

(2) _____

_____

(3) _____

_____

(4) _____

_____

10. Pricing Decision Chart

10a. The crop pricing decision chart is divided into four quadrants. Describe the predicted market conditions for each quadrant.

UPPER RIGHT QUADRANT

futures price: _____

basis: _____

cash price: _____

_____

Suggested marketing alternative(s):

_____

_____

LOWER RIGHT QUADRANT

futures price: _____

basis: _____

cash price: _____

_____

Suggested marketing alternative(s):

_____

_____

LOWER LEFT QUADRANT

futures price: _____

basis: _____

cash price: _____

_____

Suggested marketing alternative(s):

_____

_____

UPPER LEFT QUADRANT

futures price: _____

basis: _____

cash price: _____

_____

Suggested marketing alternative(s):

_____

_____

10b. Using the crop pricing decision chart as a guide, what marketing alternative(s) would you select for the following exercises? If your predictions prove correct, what will be your expected net price?

Situation: On the date you are making your marketing decisions, the following wheat prices and charges are in effect:

Cash price of wheat at local elevator	$3.11
Futures price	$3.61
Local basis	$_____

Use the following charges and credits if they apply to the marketing alternative given in Exercises 1-4 that follow on pages 110-113.

Storage, when used	$0.25 per bushel
Brokerage fees and interest when hedging	$0.03
Options trading costs	$0.04
Forward contract - sell for	$3.26
Elevator fee for delayed price contract	$0.30

(continued)

Exercise 1

Your predictions:

Futures price declines to	$3.36
Basis weakens to	- $0.75
Expected local cash price	$_____

Refer to quadrant: _____

Your selected marketing alternative(s):

Exercise 2

Your predictions:

Futures price increases to	$3.85
Basis strengthens to	- $0.27
Expected local cash price	$_____

Refer to quadrant: _____

Your selected marketing alternative(s):

Exercise 3

Your predictions:

Futures price increases to	$3.82
Basis weakens to	- $0.73
Expected local cash price	$_____

Refer to quadrant: _____

Your selected marketing alternative(s):

Exercise 4

Your predictions:

Futures price decreases to	$3.38
Basis strengthens to	- $0.26
Expected local cash price	$_____

Refer to quadrant: _____

Your selected marketing alternative(s):

11. Recording Sales Transactions

11a. What can you do specifically to profit from your good and bad past marketing decisions?

12. Farm Records

12a. What farm records should you have available when preparing your grain marketing plan?

13. Market News Reports

13a. As you approach the task of making grain price predictions, what kind of market news information will you need?

14. Determining Appropriate Grain Marketing Time(s) and Appropriate Marketing Alternative(s)

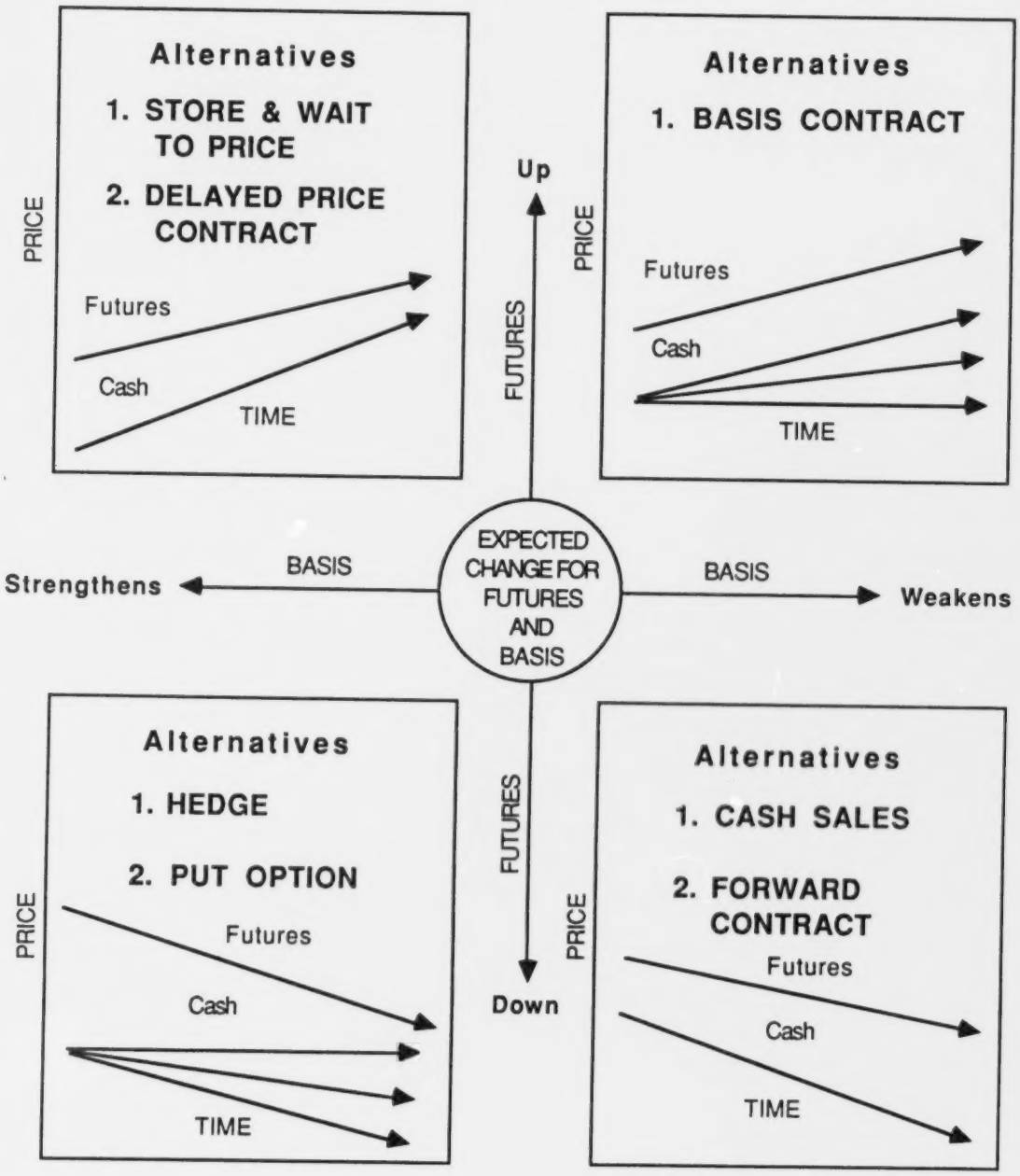
You are now ready to practice the art of pricing and selling your grain. A form with the above title has been developed to guide you through the procedures required for pricing and selling your grain (see pages 119 - 125). Use the charts on pages 116 through 118 to complete the form. The procedures given in the form have been explained in the *Student Manual*. This manual and your teacher will provide all the information needed to complete the following tasks:

- Identify your present grain ownership situation.
- As you complete the form, identify the best marketing alternatives for you to use in marketing your grain.
- List your chosen marketing alternative(s). Identify the time period during the two-year marketing season that you acted. Explain your reasons for these decisions.

Remember, if you carefully study all available information, your predictions can be as accurate as those of the experts. ***Good luck is usually the result of hard work.***

14a. In conclusion, give the marketing alternative(s) you have chosen. Identify the time period during the two-year marketing season that you have taken action. Tell why you made these decisions.

PRICING DECISION CHART ON CROPS[1]



[1] Government program alternatives omitted from discussion. These marketing alternatives would not be selected where the loan rate is above the cash price and the farmer elects to participate in the program.

Source: Dean Baldwin, Extension Economist, Grain Marketing, Department of Agricultural Economics and Rural Sociology, The Ohio State University

RECORD OF GRAIN SALES

Grain _____ Marketing period _____ Bushels to be sold _____

Production cost/bu. _____ Break-even price _____ Target price _____

Date	Marketing Alternative	Place of Contract-Elevator, Broker	Bushels sold	Delivery month	Delivery date	Percent sold	Bushels remaining	Expected Net Price	Net Price Received	Reason for Making Sale

510

511

WEEKLY BASIS CHART[1]

Commodity _____

Month and Week	Closing Futures Price Futures Contract Month[2]								Local Cash Prices Location[3]			Basis Location[4]			

[1]This form may be used to keep your ongoing price and basis records.
[2]Enter the futures price for the nearby futures contract.
[3]For each selling location, grain elevator, enter the price bid for Week 1.
[4]Subtract the nearby futures from the local cash price and enter basis.

Determining Appropriate Grain Marketing Time(s) and Appropriate Marketing Alternative(s)

CROP _____ CROP YEAR _____ BUSHELS TO PRICE _____

Time of Grain Pricing[1]	Date	Marketing Period[2] (1st, 2nd, 3rd, 4th)
Before harvest	_____	_____
Harvest	_____	_____
Grain stored	_____	_____

Local cash grain	$ _____
Nearest futures (_____ (month) futures)	$ _____
Local basis	$ _____
Historic basis on present date[3]	$ _____
Historic basis _____ (month) futures[3]	$ _____
Local cash grain	$ _____
Distant futures month _____	$ _____
Basis on distant futures delivery month	$ _____
Historic basis _____ (month) futures[3]	$ _____
Local cash grain	$ _____
Distant futures month _____	$ _____
Basis on distant futures delivery month	$ _____
Historic basis _____ futures[3]	$ _____

MAKING PRICE PREDICTIONS

Study the following:

- **Weekly basis chart**
- **Record of grain sales**
- **Fundamental forces affecting grain prices**[4]

Predicted basis and futures price movements[5]

Basis weaken - futures up	_____
Basis weaken - futures down	_____
Basis strengthen - futures down	_____
Basis strengthen - futures up	_____

(1) See *Student Manual*, Figure 4-1, "Grain Selling Opportunities."

(2) See _____ (crop) "Marketing Decisions Calendar"

(3) See your "Weekly Basis Chart Record of Futures Prices, Local Prices, and Basis."

(4) See Worksheet 5, "Fundamental Forces Affecting the Grain Market."

(5) Review "Crop Pricing Decision Chart."

Estimated prices and basis for _____ (month) futures delivery month

Estimated cash price (1) $ _____

Estimated _____ (month) futures $ _____

Estimated basis $ _____

Historic basis _____ (month) futures $ _____

PRICING ALTERNATIVES (2)

Period and Date of Pricing	Delivery of Grain	Marketing Alternatives Selected (3)	Bushels Committed
Before harvest date(s)	Delivery from field at harvest	Cash sale	
_____		_____	_____
_____	or	_____	_____
_____		_____	_____
_____	Harvest, store, and sell later	_____	_____
_____		_____	_____
_____		_____	_____
Harvest date(s)	Delivery from field at harvest	Cash sale	
_____		_____	_____
_____		_____	_____
_____		_____	_____
_____		_____	_____
_____	Store and price for future delivery	_____	_____
_____		_____	_____
_____		_____	_____
_____	Delivered but not priced	_____	_____
_____		_____	_____
_____		_____	_____
_____		_____	_____
_____		_____	_____
Grain stored but not priced - date(s)		Cash sale	
_____		_____	_____
_____		_____	_____
_____		_____	_____
_____		_____	_____

(1) Estimated cash price is estimated futures price minus the estimated basis.
(2) See *Student Manual,* Figure 4-17, "Summary of Grain Marketing Alternatives."
(3) See *Student Manual,* Figure 4-3, "Marketing Alternatives."

DETERMINING ESTIMATED NET PRICE RECEIVED FOR CHOSEN MARKETING ALTERNATIVE(S)

PRICE AT DELIVERY Cash sale of grain

NET PRICE is the cash price quoted less any moisture and grading discounts.

Cash price quoted	$ _____
Less discounts	$ _____
Less storage cost if stored	$ _____
NET PRICE	$ _____

Use basis to evaluate cash price bid.[1] Date _____

Cash bid - local elevator	$ _____
Near futures price _____ (month) futures	$ _____
Local basis	$ _____
Historic basis	$ _____
Difference in basis (if any)	$ _____
Expected price if historic basis in effect	
Near futures price _____ (month) futures	$ _____
Less historic basis	$ _____
Expected cash price	$ _____

FORWARD CONTRACT Use basis to evaluate forward contract bid.[2]

THE BID	
Forward contract cash price bid	$ _____
Near futures price _____ (month) futures	$ _____
Historic basis used by grain buyer in determining bid	$ _____
YOUR ESTIMATE	
Near futures price	$ _____
Less your historic basis	$ _____
YOUR ESTIMATED PRICE (before discounts)	$ _____

Compare estimated price with bid price

(1) See *Student Manual*, "Using Basis to Evaluate Cash Price Bid."

(2) See *Student Manual*, "Steps in Forward Contracting Grain."

HEDGING

Date hedge placed _____

Date hedge planned to be lifted _____

Number of contracts to be hedged _____ 5,000 bu., CBT; _____ 1,000 bu., American Exchange

Margin deposit required $ _____

Interest rate _____% and number of months to be charged for margin deposit _____

COSTS OF HEDGING

Brokerage fee or commission $ _____

Interest on margin deposit $ _____

Storage costs to be recovered when stored grain is hedged $ _____

LOCALIZE FUTURES PRICE (1)

Historic basis _____ (month) futures on date hedge is to be lifted $ _____

Predicted futures price when hedge is to be lifted $ _____

Less:

Brokerage or commission fee $ _____

Interest on margin deposit $ _____

Decline in quality or grade (if any) $ _____

Historic basis on date hedge to be lifted $ _____

Expected net price (localized) $ _____

HEDGING TRANSACTION

Cash	Futures	Basis
Date hedge placed _____		
Grain growing _____ or grain stored _____	Sell _____ contracts _____ (month) futures	
Cash price $ _____	Futures price $ _____	$ _____
Date hedge lifted _____		
Harvest and sell _____ or store and sell _____	Buy _____ contracts _____ (month) futures	
Cash price $ _____	Futures price $ _____	$ _____
Gain $ + _____ or loss $ - _____	Gain $ + _____ or loss $ - _____	Gain $ + _____ or loss $ - _____

(1) See *Student Manual*, "Procedures for Hedging."

Cash price date hedge lifted	$ _____
Plus gain in futures	$ _____
OR less loss in futures	$ _____
Less brokerage or commission fee	$ _____
Less interest on margin deposit	$ _____
Estimated net price	$ _____

Recovery of Storage Costs If Grain Was Stored(1)

Estimated net price	$ _____
Less storage cost	$ _____
Net price for stored grain	$ _____
Less cash price date hedge lifted	$ _____
Payment (if any) for storage	$ _____

COMMODITY OPTIONS CONTRACT

Date put option(s) purchased _____

Date put option planned to be terminated _____

Number of put options to be purchased _____ 5,000 bu., CBT

Interest rate _____% and number of months to be charged for premium _____

Costs of purchasing put option

Strike price $ _____ for premium of	$ _____
Interest on premium	$ _____
Broker fee	$ _____

LOCALIZE STRIKE PRICE (2)

Strike Price		$ _____
Less		
Premium	$ _____	
Interest on premium	$ _____	
Broker fee	$ _____	
Historic basis when option terminated	$ _____	
		$ _____
MINIMUM SELLING PRICE		$ _____

(1) See *Student Manual,* "Earning Storage Payment."

(2) See *Student Manual,* "Preliminary Steps before Purchasing Option."

PURCHASING PUT OPTION TRANSACTION

Cash	Option	Underlying Futures	Premium	Basis
Date put option purchased _____	Buy _____ 5,000 bu. _____ (month) put options	_____ (month) futures		
Grain growing ____ or grain in storage ____	Strike price $ _____	$ _____	$ _____	$ _____
Cash price $ _____				
Date put option terminated _____		_____ (month) futures	$ _____	
Sell _____ bu. grain at cash price $ _____		(same month as above) $ _____	In the money $ _____ At the money $ 0.00 Out of the money $ 0.00 Time value, if any $ _____	$ _____
			Gain in value, if any $ _____	Gain $ + _____ or loss $ - _____

Cash price day put option terminated	$ _____
Plus gain in premium value if in the money OR	$ _____
Less premium if at the money or out of the money	$ _____
Plus time value, if any	$ _____
Less broker fee	$ _____
Less interest on premium	$ _____

METHOD OF TERMINATING OPTION

Exercise _____

Expiration _____

Liquidation _____

DELAYED PRICE CONTRACT

Costs of delayed price contract

Service charges specified in contract

_____

_____

_____

_____

_____

Total Service Charges $ _____

Determine Estimated Net Price of Grain on Date Priced[1]

Date delayed price contract entered into _____

Period when grain is to be priced _____

Estimated _____ (month) futures price at time grain is to be priced	$ _____
Less historic basis on pricing date	$ _____
Gross price	$ _____
Less service charges	$ _____
Net price	$ _____

BASIS CONTRACT

The price received by the producer is the futures price in the contract month agreed upon on the date the producer prices the grain, plus or minus the basis stated in the basis contract, less any fee the elevator may charge.

Futures month specified in contract	_____
Historic basis date contract signed	$ _____
Historic basis on date planned to price grain	$ _____
Basis specified in contract	$ _____
Elevator fee (if any)	$ _____
Date contract signed	_____
Cash price	$ _____
_____ (month) futures price	$ _____
Local basis	$ _____
Date grain priced	_____
_____ (month) futures price	$ _____
Plus or minus established basis	$ _____
Gross price	$ _____
Less elevator fee (if any)	$ _____
Net price	$ _____

(1) See *Student Manual*, "Steps in Delayed Pricing."

NOTES